# THE IRON TRADE REVIEW

Volume XLI CLEVELAND, SEPTEMBER 19, 1907 Number 12

## GREATER ACTIVITY

### IN PIG IRON MARKET IN EASTERN CENTERS.

### But Lower Prices Prevail.—Strong Competition in Sheets.—New Record of Production by American Bridge Co.

Largely increased sales of pig iron in the eastern territory, particularly of basic, have been the leading feature of the market, which has been marked by dullness in most sections of the country. Favorable crop reports and other evidences of prosperity of the farmers are increasingly important as indicating heavy purchases by agricultural interests. In some quarters, lack of capital is holding up enterprises, and there is general complaint of slowness in making collections.

**Heavy Sales of Basic Pig**

It is understood that about 13,000 tons of pig iron were shipped last week from the Chicago district to supply certain eastern plants of the Steel Corporation where there was a shortage. No Bessemer pig iron is to be had, and in the central west there is a scarcity of basic for prompt delivery, a fact which was developed within a few days by inquiries for large tonnages. The market for steel making irons is considerably stronger than for foundry grades. Sales of basic in the east have amounted to nearly 50,000 tons, and, although concessions in prices were made, the renewed activity has caused a more hopeful feeling. Prices on the higher grades of southern pig iron are being maintained by co-operation of leading interests, and the southern market shows more strength. In the central west, foundries are not so busy as they were a month or two ago, and there is some hesitation in taking iron on contract, but cancellations are not numerous.

**Steel Rail Conference**

A meeting of the special committee of rail experts and railway representatives to agree upon new specifications will be held in New York, Sept. 24, and it is expected that a large number of orders for rails will be placed soon after the announcement of the agreement. At present, the sales of heavy sections are extremely small, but fair business is being done in light rails.

**Heavy Bar Specifications**

Heavy specifications are being received from agricultural interests for steel bars, but bar iron is not in very active demand, and the prices are irregular.

**Structural Material**

A new record in structural material was made by the American Bridge Co. in August, the product being 58,700 tons. It is expected that a still better record will be made in October. Recent orders of structural material include 8,000 tons of bridge material awarded by a western railroad to the American Bridge Co., and a number of other heavy railroad orders are pending. Independent interests have obtained their share of work, including three Chicago jobs, all over 1,000 tons, and the superstructure of the new court house at Cleveland.

**Price Cutting is Reported**

Deliveries on sheets are much improved, and the demand is decreased. Independents ship very promptly. There has been strong competition on rather small tonnages of sheets and persistent reports of cutting in prices are in circulation. Some important interests, which have been obtaining large premiums on plates for a number of months, are now taking desirable business at 1.70c Pittsburg. Tin plate orders are not numerous. The demand for coke is strong and prices are well maintained. Scrap is weak.

## WORKING CAPITAL

### NEEDED BY THE AMERICAN STEEL FOUNDRIES

### And President Opposes Payment of Dividend.—Excellent Showing for the Past Year.—Proposed Improvements.

The American Steel Foundries makes a very favorable showing in its report for the year ended June 31, 1907.

Swartwout & Appenzellar as stockholders have addressed a letter to the chairman of the board of American Steel Foundries asking the company to take up the question of the resumption of the full 6 per cent dividend on the preferred stock.

The letter, in part, reads as follows: "If your company is able to run its plants to their maximum capacity without the need of any borrowed money, and if the earnings of the year just ended are about three times the amount necessary to pay the full 6 per cent dividend on the preferred stock, do you not think that the company has reached the point where dividends should be resumed? In other words, is it fair longer to force the stockholders of your company to lend you money without interest?" Swartwout & Appenzellar ask the company to make public the reasons if it should refuse to resume the dividends.

The letter then continues. "The above request for consideration is made with full knowledge of that article in your by-laws which states that the dates for the declaration of dividends shall be those of the regular meetings of the board of directors in the months of April, July, October and January in each year. The widespread interest, however, among stockholders of your company at the present time as to the probability of their having some return on their investment should justify your making public a statement at this time."

President Wm. V. Kelley, in his report to the stockholders, says:

The gross sales were $19,463,521.05 as compared with $15,297,495.89 for the preceding year, and $9,053,608.85 for the year ended July, 1905.

Earnings from operations of plants and other income, after deducting

(Continued on page 457.)

# THE WEEK IN IRON CENTERS

## PITTSBURG.

### Conditions Sentimentally Improved, but Quiet Still Prevails.

Office of THE IRON TRADE REVIEW, 521 Park Bldg., Sept. 17.

Sentimentally market conditions in this district have improved during the week under review, but the improvement ends there. The quiet of the past six weeks still prevails. The prevailing inactivity has been felt in every direction and last week reached lines heretofore unaffected. Bar iron business has improved slightly, and specifications against steel bar contracts are better than they were. There is a little new sheet business and specifications on old contracts for light gage galvanized sheet products are heavy, but the demand for pipe and wire products has fallen off. There is no new steel plate business being offered and tin plate from the standpoint of new business is dead.

There have been a few pig iron inquiries during the week to break the monotony and these include a fair tonnage of northern foundry iron, some basic pig iron, a little charcoal iron, and a small tonnage of mill iron. Prices are unchanged all along the line. Furnaces are being urged to make deliveries on their contracts and buyers are getting better action on low priced contracts placed last fall and apparently overlooked by furnaces during the reign of high-priced spot iron last winter and spring.

The scarcity of money is more pronounced now than it was a week ago. Several improvement plans have been temporarily abandoned on this account and to this cause is attributed the unwillingness or inability of railroad interests to contract. Their business is noticeably lacking from the market.

**Pig Iron.**—The leading pig iron producers report absolute quiet during the week under review and, aside from one transaction put through by a middleman on a trade deal, there has been no movement in steel making iron. There is an inquiry out for a fair tonnage of northern foundry iron extending into next year, as well as a few small inquiries for prompt foundry iron and a little malleable and charcoal pig iron, but here the interest stops. Consumers, as a rule, seem to be fairly well covered by contract up to the first of the year and the inquiries now out are to fill in on account of slowness of furnaces in making contract shipments. Northern No. 2 foundry iron is quoted $21 to $21.50 valley for delivery during the remainder of the year, and on a good tonnage and a firm offer this could be shaded 25 cents. Southern No. 2 is offered at $18 Birmingham, and southern gray forge has been sold as low as $16.50 Birmingham. Bessemer iron is held firmly at $22 valley, and basic iron $20.50 to $21 valley. There is practically no Bessemer iron to be had, one of the large producers having tried to buy to fill up on contract during the week, but without success. The Republic furnace reported out last week is getting back into commission and will be running full before the end of the week. For delivery during the remainder of the year, we quote as follows:

| | |
|---|---|
| Bessemer, Valley | $22.00 to 22.25 |
| Bessemer, Pittsburg | 22.90 to 23.15 |
| No. 1 Foundry, Pittsburg | 22.60 to 23.15 |
| No. 2 Foundry, Pittsburg | 21.90 to 22.40 |
| Gray Forge, Pittsburg | 20.90 to 22.40 |
| Basic, Valley | 20.50 to 21.00 |
| Basic, Pittsburg | 21.40 to 21.90 |

**Ferro-Manganese.**—But very little interest is being shown in the alloy market, despite the efforts of importers to stimulate business by means of attractive prices. Bids are asked much oftener than prices quoted. On carload lots, prompt delivery ferro-manganese, foreign 80 per cent, is quoted at $60 Pittsburg and for the remainder of the year, $59 Pittsburg.

Imported 50 per cent ferro-silicon is quoted $106 Pittsburg, domestic 12 per cent, $36; 11 per cent, $35; 10 per cent, $34. The lower grades of imported ferro-silicon are quoted 50 cents lower. These quotations are applicable to Pittsburg territory. Western and central western prices, where the material is not subject to the competition of foreign grades, are higher, and in the east a little lower.

**Plates.**—No new plate business is being taken on by the mills at this time and more liberal allowances are being made on contract specifications. The lake shipyards, aside from material required for repair work, have not placed any new business and steel car builders have not given notice of new rolling stock contracts. Inability to place bonds to advantage is given as the reason for railroads not placing contracts in contemplation. We continue to quote:

Tank plate, ¼-inch thick, 6¼ to 100 inches, 1.80c to 1.90c f. o. b. mill Pittsburg for prompt shipment, and 1.70c base Pittsburg on future deliveries. Extras are as follows per 100 pounds: Boiler and flange steel plates 0.10c; A. B. M. A. and ordinary firebox steel plates, 0.20c; still bottom steel, 0.30c; marine steel, 0.40c; locomotive firebox steel, 0.50c; all sketches, excepting straight taper plates varying not more than four inches in width at ends, narrowest end not being less than 30 inches, 0.10c; circles, 0.20c; plates in width over 100 inches up to 110 inches, 0.05c; over 110 inches up to 115 inches, 0.10c; over 115 inches up to 120 inches, 0.15c; over 120 inches up to 125 inches, 0.25c; over 125 inches up to 130 inches, 0.50c; over 130 inches, 1.00c. Gages under ¼-inch to and including 3-16-inch plate on thin edges, 0.10c; under 3-16 to and including No. 8, 0.15c; under No. 8 and including No. 9, 0.25c. Five cents extra for less than carloads. Terms, net cash in 30 days.

**Sheets.**—There is a very heavy demand for light gage galvanized stock and roofing sheets. Promises of the leading interest are 16 to 18 weeks on galvanized and blue annealed, although the independent interests which are not booked so far ahead are promising seven to nine weeks. There is no change in prices. A majority of mills are anxiously seeking heavy sheet or light plate business, the end of the order books in most cases having been practically reached. We quote as follows:

Black steel sheets, one pass, cold rolled, Nos. 11-12, 2.20c; Nos. 13-14, 2.25c; Nos. 15-16, 2.30c; Nos. 17-21, 2.35c; Nos. 22-24, 2.40c; Nos. 25-26, 2.45c; No. 27, 2.50c; No. 28, 2.60c; No. 29, 2.75c; No. 30, 2.85c; galvanized Nos. 10-11, 2.65c; Nos. 12-14 2.75c; Nos. 15-16, 2.85c; Nos. 17-21, 3.00c; Nos. 22-24, 3.15c; Nos. 25-26, 3.35c; No. 27, 3.55c; No. 28, 3.75c; No. 29, 4.00c; No. 30, 4.25c; blue annealed, No. 10 and heavier, 1.85c; Nos. 11-12, 1.90c; Nos. 13-14, 1.95c; Nos. 15-16, 2.05c. Corrugated roofing, $1.90 per square for No. 28 painted, 2½-inch corrugation, and galvanized, $3.25 per square for No. 28.

**Tin Plate.**—The tin plate business is still very slow, and buyers are holding off in most instances. There have been some charges of price cutting, but nothing definite has been run down and we continue to quote as follows:

Coke tin plate, 100-pound basis, 14 x 20, $3.90 f. o. b. mill, Pittsburg district. Terms, 30 days, less 2 per cent for cash in 10 days.

**Rails and Track Material.**—The

week under review has been another quiet one from the standpoint of new rail tonnage. There have been no further reservations of 1908 capacity, and the bookings for the past week taken altogether were only a few thousand tons. The report of the joint committee representing manufacturers and railroads is expected before Oct. 1, and when its findings are announced, a rush of business is expected. On the old specifications we quote as follows:

Fifty-pound and heavier, 500-ton lots and over, $28; carloads and less than 500 tons, $30; less than carload lots, $32; 8-pound, $40; 12-pound, $36 to $37; 16-pound, $35 to $36; 20-pound, $34 to $35; 25 to 45-pound, $33 to $34; angle splice bars for standard sections, $1.65; standard spikes, $2.15 to $2.20 Pittsburg; hand spikes, $2.40 to $2.50 Pittsburg.

**Steel.**—Poor deliveries on contracts and the evident scarcity of semi-finished steel are the only features in this market. There is little or no new buying for the reason that consumers are not getting deliveries on old contracts. Bessemer billets 4 x 4 and larger are quoted $29.50 to $30. Pittsburg and open-hearth billets, $31.50 to $32. Sheet bars are in good demand, but producers are sold up to capacity for so far ahead that they are not taking on new business.

**Hoops, Bands and Cotton Ties.**—The fall contracting for hoops and bands has not materialized as strong as was expected several weeks ago. A few fair sized contracts have been placed, but they have been by smaller interests. The movement of cotton ties from southern warehouses has been good. Prices are unchanged and we continue to quote:

Hoops in carload lots, 2c; in less than carload lots, 2.10c; bands, 1.60c, base half extras as per standard steel; cotton ties, 97c per bundle.

**Merchant Bars.**—Bar iron on contract is moving more freely and there are several fair sized inquiries now pending. While the official price is still $1.70 Pittsburg for Pittsburg shipments, this price has been shaded $1 a ton on at least one contract. Specifications against steel bar contracts have improved, and the first two weeks of September showed a little increase over the first two weeks of August, although they were not as large as during the same period last year. There is practically no new steel bar business being placed with the mills. We quote as follows:

Common iron bars, 1.70c to 1.75c Pittsburg in carload lots and over, 1.75c to 1.80c in less than carloads; 1.60c base Pittsburg, plus freight to point of shipment on western deliveries; Bessemer steel bars, 1.50c net for future deliveries; 1.85c to 1.95c out of stock; plow and cultivator, 1.60c net; channels, angles, zees, tees, under three inches, 1.70c, all f. o. b. Pittsburg. The following differentials are maintained on steel: Less than 2,000 pounds, 0.10c advance; less than 1,000 pounds of a size, 0.30c advance. Cold rolled and ground shafting, 50 per cent off in carloads, and 45 per cent in less than carloads, delivered in base territory; open-hearth spring steel, 2.25c to 2.50c; sleigh shoe flats, 1.60c to 1.65c; smooth finished machinery steel, 1.90c to 2c; toe calk, 2.10c to 2.15c. The price of pianished and machine straightened tire is 1.80c, base, half tire extras. Iron finished tire up to 1½ inch and over to be sold on regular bar basis of 1.60c base, half extras, steel card.

**Structural Material.**—Aside from a brisk demand for heavy shapes, the mill end of the structural business has been very light and the bookings of light shapes have been below the average. Fabricating shops are getting a better supply of plates to go with light shapes in order to stimulate general business. Railroad bridge work, which was expected to be heavy this fall, has not met expectations and the tight money situation is holding up several building projects in different parts of the country. Mill prices are unchanged as follows:

Beams and channels, 15-inch, and under, 1.70c; over 15 inches, 1.90c; zees, 1.70c; tees, 1.70c; angles from three to six inches inclusive, 1.70c; over six inches, 1.80c; universal and sheared plates, 6¼ inches and wider, 1.80c base.

**Wire and Wire Nails.**—The last 10 days has noticed a decided falling off in the volume of new business in wire products, although the demand for deliveries against old contracts continues as heavy as heretofore. As a general proposition, delivery promises now run about eight to 10 weeks, although on some lines reasonably prompt shipment can be made. Jobbers' stocks are reported light, and as far as can be learned mills have no stocks on hand. We quote as follows:

Wire nails, jobbers' carload lots, $2.05, retailers' carload lots, $2.10; less than carloads, $2.15; painted barb wire, $2.20 for jobbers in carloads; retailers in carloads, $2.25; and less than carload, $2.35; with 30c for galvanizing; plain wire, $1.90 for jobbers, and $1.95 by carload.

**Merchant Pipe.**—The volume of new business on merchant pipe is light, although it is running about even with the first part of August. Jobbers' stocks are still unbalanced. An independent interest which in April announced a card $4 per ton in advance of prices quoted by the leading interest, but shaded its card price, is now quoting its April card discounts of 72 on black and 62 on galvanized, base size ¾ inch to 6 inches. We continue to quote the following official discounts of the leading interest subject to one point and 5 to consumers in large lots:

| | —Steel— Black. | Galv. |
|---|---|---|
| ⅛ and ¼ inch | 65 | 49 |
| ⅜ inch | 67 | 53 |
| ½ inch | 69 | 57 |
| ¾ to 6 inches | 73 | 63 |
| 7 to 12 inches | 70 | 55 |
| EXTRA STRONG PLAIN ENDS. | | |
| ⅛ to ⅜ inch | 58 | 46 |
| ½ to 4 inches | 65 | 53 |
| 4½ to 8 inches | 61 | 49 |
| DOUBLE EXTRA STRONG PLAIN ENDS. | | |
| ½ to 8 inches | 54 | 43 |

**Wrought Iron Pipe.**—There is no change in this market and prices are being firmly maintained. Delivery promises have not improved materially and manufacturers of iron pipe are still loaded to the guards on old contracts. We quote the following discounts:

RANDOM LENGTHS WITH THREADS AND COUPLINGS—CARLOAD LOTS.

| | Black. | Galv. |
|---|---|---|
| ⅛, ¼ and ⅜ inch | 59 | 43 |
| ½ inch | 62 | 51 |
| ¾ and 6 inch | 67 | 57 |
| 7 and 8 inch | 62 | 46 |
| PLUGGED AND REAMED. | | |
| 1 to 4 inch | 65 | 55 |
| EXTRA STRONG PLAIN ENDS. | | |
| ⅛, ¼ and ⅜ inch | 52 | 40 |
| ½ to 4 inch, inc | 59 | 47 |
| 4½ to 8 inch | 55 | 42 |
| DOUBLE EXTRA HEAVY PLAIN ENDS. | | |
| ½ to 3 inch, inc | 48 | 37 |

**Boiler Tubes.**—We quote the following discounts:

| | Iron. | Steel. |
|---|---|---|
| 1 to 1½ inch | 42 | 47 |
| 1¾ to 2¼ inch | 42 | 59 |
| 2½ inch | 47 | 61 |
| 2¾ to 5 inch | 52 | 65 |
| 6 to 13 inch | 42 | 59 |

2¼ inches and smaller, over 18 feet, 10 per cent net extra.

2¾ inches and larger, over 22 feet, 10 per cent net extra.

**Coke.**—There is a fair inquiry for both furnace and foundry grades of coke, and on account of the heavy demands on contract very little spot coke is being offered at this time. The fact that several valley furnaces were out of blast last week has as yet not been felt in the coke market, and prices are firm at $2.80 to $2.90 for spot furnace coke and $3.25 to $3.40 for spot foundry coke standard grades. The labor situation in the regions is a serious handicap to operation, and the starting of several new plants and additions to old plants have made

labor with which to draw the coke scarcer than heretofore.

**Old Material.**—The scrap market has shown a further decline and the amount of material being moved at the present time is hardly enough to warrant quoting a market price. Turnings are about the only grade for which there is an inquiry. We quote the following nominal prices, gross tons, delivered in the Pittsburg district.

Heavy melting scrap, $17.25 to $17.75; rerolling rails, $18.75 to $19; bundled sheet scrap, $14.50 to $15; iron axles, $28 to $28.50; old iron rails, $2 to $23; No. 1 wrought scrap, $18.25 to $18.75; old car wheels, $24 to $24.50; low phosphorus scrap, $22 to $22.50; machine shop turnings, $14 to $14.50; cast borings, $13 to $13.50; No. 1 cast scrap, $19.25 to $19.75.

## CHICAGO.

### Limited Sales of Pig Iron at Lower Prices—Markets Generally Dull.

Office of THE IRON TRADE REVIEW.
1362 Monadnock Block, Sept. 17.

The week past has nothing to recommend it from the standpoint of sales. It has been an unusually dull period, marked by a liberal quantity of specifications for finished material and lower prices for pig iron. The decline in pig affects southern grades for the new year and northern irons for the current year, the recession being 50 cents in each case. New tonnage for either crude or finished material is light, although so far as rolled shapes for this year's delivery are concerned, mills have nothing to worry over, having sufficient tonnage on their books and specifications in hand to insure operation of their plants to full capacity during the remainder of the year. Store trade is very active, especially in plates and iron and steel pipe, in which materials mills have long been sold up. Sheets are a little easier in price, but demand is without diminution. Contracts at the new prices are reported by manufacturers of wire products, some of the orders providing for deliveries extending into the new year. Scrap is without material change in price, but is sentimentally stronger.

**Pig Iron.**—Sales of iron ranging from carloads to 100 tons have been more numerous this week. Slight though this buying is, it has induced a more cheerful view of the situation in some selling quarters, despite the fact that the purchases were coincident with further declines in prices. For the first half of 1908, southern No. 2 foundry has declined to $17.00 Birmingham, several sales at this figure having been made in the week past. Northern irons for the same delivery are unchanged at a range of $21 to $21.50 Chicago for No. 2, but for last quarter's shipment they can be obtained at $23, Chicago. As no transactions larger than 100 tons have been made, it is possible that this price can be shaded 50 or 75 cents a ton on a round tonnage. It all depends on the buyer's financial standing, his requirements and deliveries. For September shipment, local furnaces have established their minimum at $23.50 for No. 2. The possibility of an increased demand for iron before the end of the year is strengthened by a more voluminous inquiry. Enough tonnage is sold daily to keep local furnace yards bare, and as this condition has been maintained to date, western stacks are content to await the buyer's incentive for further wants. There is some inquiry for standard Bessemer and valley basic, which are quoted at $21.50 and $20 respectively, valley furnace. Charcoal iron has softened in sympathy with the decline in other grades, and Lake Superior for 1907 shipment is now quoted at $26.50 Chicago. There is no change in silicon irons, which continue firm in price. We quote as follows:

| | |
|---|---|
| Lake Superior Charcoal | $26.50 to 27.00 |
| Northern Foundry No. 1 | 23.50 to 24.00 |
| Northern Foundry No. 2 | 23.00 to 23.50 |
| Northern Foundry No. 3 | 22.50 to 23.00 |
| Southern Foundry No. 1 | 22.85 to 23.35 |
| Southern Foundry No. 2 | 22.35 to 22.85 |
| Southern Foundry No. 3 | 21.85 to 22.35 |
| Southern Foundry No. 4 | 21.35 to 21.85 |
| Southern No. 1 Soft | 22.85 to 23.35 |
| Southern No. 2 Soft | 22.35 to 22.85 |
| Southern Gray Forge | 20.85 to 21.35 |
| Southern Mottled | 20.35 to 20.85 |
| Southern Silveries, 4 per cent silicon | 23.85 to 24.35 |
| Southern Silveries, 5 per cent silicon | 24.85 to 25.35 |
| Southern Silveries, 6 per cent silicon | 25.85 to 26.35 |
| Jackson Co. Silveries, 6 per cent | 30.40 |
| Jackson Co. Silveries, 8 per cent | 32.40 |
| Jackson Co. Silveries, 10 per cent | 34.40 |
| Malleable Bessemer | 23.00 to 23.50 |
| Standard Bessemer | 23.90 to 24.40 |
| Valley Basic | 22.40 to 22.90 |

**Billets and Rods.**—Negotiations for crude steel are of an uninteresting character. Carload wants predominate, and these local mills are able to satisfy. Prices are without change at $36 to $38 Chicago for forging billets; $29.50 to $30 Pittsburg for rolling billets; $37 Pittsburg for Bessemer wire rods, and $38 Pittsburg for open-hearth rods.

**Merchant Bars.**—There is no decline in the volume of specifications for either iron or steel bars. On steel, the Milwaukee plant of the Illinois Steel Co. has shipping instructions in hand for a tonnage equal to three months' output, a gain which shows no signs of receding. New tonnage is light, as is to be expected for this time of the year, but the contracts existing are executed to the letter in every instance, so far as monthly quotas are concerned. Bar iron is without change in price. Each week sees an improvement in the demand for this product, although it is sometimes slight. The week under review has been fairly active from a new tonnage standpoint. The railroads are not yet buying ahead to their full requirements, but the steadiness of specifications indicates a revival of activity in these channels. Implement and wagon manufacturers are buying more liberally than formerly, the early deliveries offered as against steel shipments being a vital factor under present conditions. Old rail stock is without change in price, being firm at 1.75c Chicago. Shafting continues ragged, some of the larger manufacturers being out of the market, declining to meet current prices. Our quotations below are on carload lots, Chicago delivery:

Bar iron, 1.78c; soft steel bars and bands, 1.78c; half extras; soft steel angles, less than 3 x 3, 1.88c; hoops, 2.18c base, full extras; planished or smooth finished tire steel, 1.98c; iron finish, up to 1½ x ½ inch, 1.93c base; iron finish, 1½ x 1½ inch and larger, 1.78c base; channels for solid rubber tire, ¾ to 1 inch, 2.28c, and 1⅛ inch and larger, 2.18c; smooth finished machinery steel, 2.18c; flat sleigh shoe, 1.83c; concave and convex sleigh shoe, 2.08c; cutter shoe, 2.36⅛c; toe calk steel, 2.33c; railway spring, 1.98c; crucible tool steel, 7c to 9c, with higher prices asked on special grades. Quotations on shafting are 60 per cent off the list f. o. b. Pittsburg for car load lots, and 55 per cent off for less than car load lots. On iron and steel bars from local stocks, we quote as follows: Bar iron, 2.25c full extras; soft steel rounds, and square, 3-inch and larger, $2 per 100-lbs. base; flats, 2 inches to 4 inches by ⅛ inch and larger, $2 per 100 pounds base; 4½ inches by 5 inches and 6 inches by 5-16 inch and thicker, $2 per 100 pounds base; all ovals, half rounds, $2 per 100 pounds base; steel bands, $2 half extras; soft steel hoops, $2.50 full extras. Other sizes not mentioned above, $2 per 100 pounds base plus half extras.

**Plates.**—Nothing has transpired within the week under review to change the situation as stated in our last report. Some makers are anxious for more tonnage, but as a general thing mills are amply supplied with orders and specifications. At least, this is the condition in Chicago. Stocks from local warehouses are moving freely, and store prices are well maintained. We quote as follows:

Plates, ¼ inch and heavier, 6¼ to

100 inches wide, either universal or sheared, 1.70c Pittsburg base. For extras see Pittsburg report. Freight rate to Chicago, 18c per 100 pounds for carload lots, and 21c for less than carload lots. Jobbers' prices for shipment from local stocks are as follows: Tank steel, ¼ inch and heavier up to 72 inches wide, 2.20c; 3-16 inch up to and including 60 inches wide, 2.30c; 3-16 inch, 72 inches wide, 2.55c; No. 8 up to 60 inches wide, 2.50c. Flange steel, 25c extra; heads, 25c extra.

**Sheets.**—Specifications for all gages, black and galvanized, continue highly satisfactory, but new tonnage is a little backward. This is attributed to the slowness with which the leading interest is making its deliveries, being from three to four months behind. Local mills are experiencing a sharp demand for blue annealed stock. While quotations are not entirely uniform, the shading is of a restricted character. We quote as follows:

Black sheets, Nos. 8, 9, and 10, 1.85c to 1.90c Pittsburg; No. 28, 2.60c Pittsburg; galvanized sheets, No. 28, 3.75c Pittsburg. Freight to Chicago, 18c per 100 pounds for carload lots, and 21c for less than carload lots. Jobbers' prices on carload lots and less from store are as follows:

No. 10, 2.50c to 2.55c; No. 12, 2.55c to 2.60c; No. 14, 2.60c to 2.65c; No. 16, 2.70c to 2.80c; Nos. 18-20, 2.80c to 2.90c; Nos. 22-24, 2.85c to 2.95c; No. 26, 2.90c to 3c; No. 27, 2.95c to 3.05c; No 28, 3.05c to 3.15c; No. 30, 3.35c to 3.45c. Galvanized sheets, Nos. 10 to 20, 3.50c to 3.55c; Nos. 22 and 24, 3.65c to 3.75c; No. 26, 3.85c to 3.90c; No. 27, 4.05c to 4.15c; No. 28, 4.25c to 4.35c; No. 30, 5.40c to 5.45c.

**Structural Steel.**—An order for 8,000 tons of fabricated material was awarded this week to the American Bridge Co. by a western railroad. This is the only important transaction we have to chronicle. Revised bids for the Milwaukee Auditorium will be out Oct. 21. The promoters have about $450,000 to spend on this building, the last bids being rejected because they exceeded this figure. None of the projects mentioned last week has been closed, the condition of the money market being responsible for the delay in many. Structural mills report that specifications and new tonnage are active. The local mill cannot give delivery before November, and has but a small vacant tonnage for that month. Prices are firm as follows:

Beams and channels, 3 to 15 inches, inclusive, 1.70c Pittsburg. For extras see Pittsburg report. Freight rate from Pittsburg to Chicago, 18c per 100 pounds for carload lots, and 21c per 100 pounds for less than carload lots. Quotations from store are as follows:

All angles, three inches and larger, including six inches, $2.05 per 100 pounds; angles, over six inches, $2.10 per 100 pounds base; beams, 3 to 15 inches inclusive, $2.05 per 100 pounds base; channels, three inches and larger, $2.05 per 100 pounds base. Less than carload lots are $1 a ton higher than foregoing prices.

**Rails and Track Supplies.**—No rail tonnage of importance has been let in the west in the past week. The Cambria Steel Co. closed between 1,500 and 1,800 tons, made up of small lots from various sources. Track supplies are moving lightly, and the Joliet works are said to be accumulating a stock of spikes. We quote as follows:

Bessemer rails, $28 to $30; less than 500-ton lots, $32; open-hearth rails, $29; light rails, Bessemer, 30 to 45-pound sections, $34; 25-pound, $35; 20-pound, $36; 16-pound, $37; 12-pound, $38, and lighter sections down to 8-pound, $44.50, all f. o. b. mill. Track supplies vary in price according to quantity and delivery. On orders accompanying rail contracts for future delivery, we quote, f. o. b. Joliet: Angle bars, 1.65c; spikes, 2.10c to 2.15c; bolts with square nuts, 2.60c; with hexagon nuts, 2.75c. For carload lots or less, for prompt shipment, the following prices are asked: Angle bars, 2.25c to 2.75c; spikes, 2.40c to 2.50c; bolts with square nuts, 2.85c; with hexagon nuts, 3c.

**Cast Iron Pipe.**—A contract for 1,400 tons is reported by the U. S. Cast Iron Pipe & Foundry Co. from the Belleville Water Works, Belleville, Ill. Gas companies are contracting very lightly, considering present prices too high. Routine orders for municipal betterments and extensions are also light, the same cause being attributed for this decline. We quote 4-inch water pipe, $38; 6 to 12-inch, $37; larger sizes, $36; gas pipe, $1.00 a ton higher.

**Merchant Pipe and Boiler Tubes.**—Conditions in the west are without noticeable change. Deliveries from mills are slow and demand on local stocks is active. Jobbers are having difficulty maintaining a full complement of sizes in iron pipe owing to the mill delinquency and prices consequently are rigidly maintained. We have reduced our quotations on steel pipe from stock one point.

We quote mill discounts, Chicago delivery, carload lots, as follows: On steel pipe, jobbers are allowed a concession of one point and five per cent additional from the schedule in force:

MERCHANT PIPE.

| | —Steel— Black. | Galv. |
|---|---|---|
| ¼ to 6 inches, inclusive..... | 71.5 | 61.2 |

BOILER TUBES.

| | Steel. | Iron. |
|---|---|---|
| 2¼ to 5 inches, inclusive.... | 62.2 | 49.2 |

Mill quotations on iron pipe are from four to five points higher than above. A concession of one point from the following quotations is allowed by Chicago jobbers on carload orders for shipment from local warehouse stocks. We quote for less than carload lots as follows:

MERCHANT PIPE.

| | Black. | Galv. |
|---|---|---|
| ⅛ to ¼ inch..... | 61 | 45 |
| ⅜ inch ..... | 63 | 49 |
| ½ inch ..... | 65 | 53 |
| ¾ to 6 inches..... | 69 | 59 |
| 7 to 12 inches ..... | 65 | 50 |

Minimum prices for wrought iron pipe, carload lots or greater, from Chicago stocks, are as follows: ⅛ inch to ¼ inch, 55; ⅜ inch, 57; ½ inch, 59; ¾ inch to 6 inches, 64; 7 inches to 12 inches, 59. Boiler tubes from store are unchanged at 60 off for steel, 47½ for iron, and 42½ for seamless, base sizes, 2¼ inches to 5 inches.

**Wire Products.**—A satisfactory number of contracts are being closed at the new prices. Demand is active, specifications being in excess of the mill capacity. Fencing is now five to six weeks behind. A little better shipment is made on nails. Plain wire is in strong demand, fabricators generally reporting a shop full of orders. Prices to jobbers, Chicago delivery, are as follows:

Wire nails, $2.34; painted barb wire, $2.38; galvanized barb wire, $2.68; smooth annealed wire, $2.08; smooth galvanized wire, $2.38; polished staples, $2.33; galvanized staples, $2.63. Carload lots to retailers, five cents higher; less than carload lots, 15 cents higher.

**Coke.**—Contracts for coke are being made with more freedom than in several weeks. The first signs of a car shortage are apparent, and despite the general apathy in the foundry trade, melters are taking time by the forelock and laying in a stock for the winter months. Furnace coke is quoted at $2.80 to $2.90 ovens, and Connellsville 72-hour foundry coke at $3.25 to $3.40 ovens.

**Old Material.**—Scrap has been exceedingly dull in the week under review. Bargain hunting is the order of the day, and since few melters are buying any thing and dealers generally are looking only for attractive lots, it is not surprising that few transactions have been made. Taking the market as a whole, however,

there is an air of improvement existing, growing out of a confidence that prices have touched bottom and an upward movement is imminent. The approach of cold weather generally strengthens the market all along the line. The Northern Pacific and the St. Louis & Southwestern have lists out for 1,000 tons and 400 tons respectively. We quote as follows, gross tons being given in the first paragraph:

| | |
|---|---|
| Old Car Wheels | $24.50 to 25.00 |
| Old Iron Rails | 20.00 to 20.50 |
| Rerolling rails (3 ft. and over) | 16.75 to 17.00 |
| Old Steel Rails (3 ft. and under) | 17.00 to 17.50 |
| Light Section Relayers, 45 lbs. and under, subject to inspection | 30.00 to 32.00 |
| Relaying Rails, subject to inspection | 28.00 to 30.00 |
| Frogs, Switches and Guards | 15.50 to 16.00 |
| Heavy Melting Steel | 15.00 to 15.50 |

We quote net tons as follows:

| | |
|---|---|
| No. 1 R. R. Wrought | $14.25 to 14.75 |
| No. 2 R. R. Wrought | 13.25 to 13.75 |
| Knuckles, Couplers and Springs | 14.50 to 15.00 |
| Shafting | 17.00 to 17.50 |
| Iron Car Axles | 23.00 to 23.50 |
| Steel Car Axles | 20.50 to 21.00 |
| Dealers' Forge No. 1 | 11.75 to 12.00 |
| Pipes and Flues | 11.00 to 11.50 |
| No. 1 Cast, 150 lbs. and less | 16.75 to 17.25 |
| No. 1 Mill | 10.00 to 10.50 |
| Mixed Busheling (Nos. 1 and 2) | 10.50 to 11.00 |
| Country sheet | 8.00 to 8.50 |
| No. 1 Boiler Cut | 10.00 to 10.50 |
| Boiler Punchings | 14.00 to 14.50 |
| Cast Borings | 8.50 to 9.00 |
| Mixed Borings, etc | 8.50 to 9.00 |
| Machine Shop Turnings | 10.50 to 11.00 |
| Railroad Malleable | 15.50 to 16.00 |
| Agricultural Malleable | 14.25 to 14.75 |
| Stove Plate and Light Cast Scrap | 14.25 to 14.75 |
| Old Iron Splice Bars | 16.50 to 17.00 |

The Barnes Drill Co., 604 South Main street, Rockford, Ill., of which B. F. Barnes is president, desires to receive catalogs of all machinery and tools suitable for a machinery manufacturing shop. The company has a splendid catalog filing system in its office, and all literature received of the nature requested will be carefully cross indexed so that it can be found immediately when wanted.

## CLEVELAND.

### Cutting in Sheet Prices Reported—Court House Contract Awarded.

Office of THE IRON TRADE REVIEW.
Browning Bldg., Sept. 17.

**Iron Ore.**—The weather has been favorable for the movement of vessels, and a very fair tonnage of ore has been shipped during the past week, in spite of labor and other difficulties at the head of the lakes.

**Pig Iron.**—The dullness of recent weeks has continued, but an occasional inquiry indicates that some interests will need considerable iron before the close of the year. This is particularly true of basic, for which there has been a good inquiry, but the demand was for prompt shipment, which furnaces are not in a position to undertake. Occasionally a foundryman finds that he will need more than he has contracted for, but this is rather exceptional and there is considerable hesitation about taking iron at what are now considered high prices. The number of cancellations has not, however, been large. The furnaces in northwestern Pennsylvania are promising to be a factor in the Cleveland district. One of these furnaces has been selling at about $21.50 for No. 2 delivered in Cleveland. Furnaces in the immediate vicinity are, however, holding pretty firmly to recent quotations and the same is true of valley interests. One Cleveland furnace sold 1,000 tons spot No. 2 at $22.20, furnace, and carload lots have been sold as high as $23. We quote f. o. b. Cleveland for the remainder of the year as follows:

| | |
|---|---|
| Bessemer | $22.90 |
| No. 1 Foundry | 22.00 to 22.50 |
| No. 2 Foundry | 21.50 to 22.50 |
| No. 3 Foundry | 20.50 to 21.50 |
| No. 2 Southern | 22.85 |
| Gray Forge | 20.00 to 20.50 |

**Coke.**—The coke market continues firm and the demand is fully up to the supply. We quote furnace coke for the remainder of the year at $3 and foundry at from $3.25 to $3.50.

**Finished Material.**—The most important contract awarded during the past week was for the steel for the new Cuyahoga county court house, amounting to about 3,000 tons. The superstructure will be furnished by the Cambria Steel Co., through Andrew Dall & S[illegible] general contractors. A number of other smaller transactions in structural material are reported, and the structural market is in good condition. Some interests which have for many months been receiving large premiums for plates are now taking desirable business at 1.70c Pittsburg. There is evidence of the sheet market being considerably easier. The principal producer is promising shipments in much shorter time than it was a few months ago and independents are doing still better. Inquiries for small tonnages of sheets have resulted in keen competition and reports of cutting in prices are current. The demand for bar iron is not brisk and prices are irregular, being in some cases very near cost. Jobbers continue to do very good business from stock, but mill orders are not so numerous or of as large tonnage as they were a few weeks ago.

**Old Material.**—The situation in scrap remains unchanged, the mills buying very little tonnage from dealers because of a belief on their part that prices will go lower. Usually there is plenty of material in mill yards and it is not likely that a scarcity of supply will force many buyers into the market if the present stationary state of prices is of long duration. We quote prices unchanged f. o. b. Cleveland gross tons as follows:

| | |
|---|---|
| Old iron rails | $21.50 to 22.00 |
| Old steel rails (re-rolling) | 17.50 to 18.50 |
| Old steel rails (under 6 feet) | 17.50 to 18.50 |
| Old car wheels | 22.50 to 23.50 |
| Steel boiler plate | 14.00 to 14.50 |
| Steel axles | 21.00 to 22.00 |
| Malleable iron (railroad) | 18.00 to 18.50 |
| Malleable iron (agricultural) | 15.00 to 16.00 |
| Heavy steel | 16.00 to 16.50 |
| Country mixed steel | 14.00 to 14.50 |
| Low Phosphorus | 20.00 to 21.00 |

We quote net tons as follows:

| | |
|---|---|
| No. 1 R. R. wrought | $16.00 to 16.50 |
| No. 1 busheling | 14.00 to 14.50 |
| No. 1 machine cast | 17.50 to 18.50 |
| Iron axles | 23.00 to 24.00 |
| Axle turnings | 12.50 to 13.00 |
| Machine shop turnings | 11.00 to 11.50 |
| Grate bars | 14.00 to 14.50 |
| Pipes and flues | 12.50 to 13.00 |
| Tank iron | 12.00 to 12.50 |
| Hoop and band iron | 8.00 to 8.50 |
| Sheet iron | 7.00 to 8.00 |
| Wrought drillings | 11.00 to 11.50 |
| Stove plate | 14.00 to 14.50 |
| Cast borings | 10.50 to 11.00 |

## CINCINNATI.

### Prices on Higher Grades Maintained and Better Feeling Prevails.

Office of THE IRON TRADE REVIEW,
First National Bank Bldg., Sept. 17.

**Pig Iron.**—A steadier feeling for high grades appears to be manifest this week. The low grades are still irregular and unsettled with but little call for them and prices vary according to the individual views of the holders. In the south, the leading producers are maintaining $18.50 Birmingham for any high grade iron free for delivery over the balance of this year. A few southern makers are accepting $18 for small lots and this can still be done, but the market is hardening and there are fewer opportunities to buy No. 2 foundry or No. 2 soft at this figure. Soft irons are having more call and the general inquiry has been a little larger than in the preceding week. There is not much in the way of voluntary demand, but salesmen are out with lists of odds and ends of iron that furnaces have for sale and are soliciting offers. As these lists contain considerable low grade iron and bids are frequently made on an average on blanket price for the whole lot, it is difficult to locate prices for each grade.

Silvery irons are cleaning up and southern silvery running 4 to 5 per cent silicon is quoted at $20 to $20.50 Birmingham. Ohio silvery, 8 per cent, is quoted at $29 to $30 at furnace.

Northern No. 2 foundry is held at $21.50 at Southern Ohio furnace, but it is said that $20 furnace has been done in the valley. A sale of valley basic is reported to have been made at $20 at furnace. It is said that about 1,000 tons of gray forge

was sold at $15.75 Birmingham. One sales agency reports sales of about 2,000 tons during the week of which a large consumer took 1,000 tons and the other 1,000 tons was scattered. This covered a miscellaneous lot of iron that one southern producer had to offer and practically sells that furnace up for the present.

With resale iron almost out of the way, as there is not much very cheap iron yet to be delivered, the market is getting back to a furnace proposition and, with the leading producers in the south working under an understanding to hold for $18.50 Birmingham on the high grades, the market has a much steadier tone.

Low grades are weak and gray forge is quoted at $15.50 to $15.75, No. 4 foundry $16 to $16.25, No. 3 foundry $17 to $17.50 Birmingham, and these figures might be shaded on a firm offer. We quote for prompt shipment, delivered Cincinnati, as follows:

| | |
|---|---|
| Southern Foundry No. 1 | $21.75 to 22.25 |
| Southern Foundry No. 2 | 21.25 to 21.75 |
| Southern Foundry No. 3 | 20.25 to 20.75 |
| Southern Foundry No. 4 | 19.25 to 19.50 |
| Southern No. 1 Soft | 21.75 to 22.25 |
| Southern No. 2 Soft | 21.25 to 21.75 |
| Southern Gray Forge | 18.75 to 19.00 |
| Northern No. 1 foundry | 23.20 to 23.70 |
| Northern No. 2 foundry | 22.70 to 23.20 |
| Northern No. 3 foundry | 21.70 to 22.20 |

Forward delivery business is not a tangible quantity. There is practically no inquiry and until something comes to light and prices are established by contracts, it is difficult to offer quotations. The prevailing sentiment in the trade is that present prices will cover anything that might come out for the balance of this year, but for next year we hear of no actual quotations. We quote for last quarter delivered Cincinnati, as follows:

| | |
|---|---|
| Southern Foundry No. 1 | 21.75 to 22.25 |
| Southern Foundry No. 2 | 21.25 to 21.75 |
| Southern Foundry No. 3 | 20.25 to 20.75 |
| Southern Foundry No. 4 | 19.25 to 19.50 |
| Southern Foundry No. 1 Soft | 21.75 to 22.25 |
| Southern Foundry No. 1 Soft | 21.25 to 21.75 |
| Gray Forge | 18.75 to 19.00 |
| Northern Foundry No. 1 | 23.20 to 23.70 |
| Northern Foundry No. 2 | 22.70 to 23.20 |
| Northern Foundry No. 3 | 21.70 to 22.20 |

**Finished Material.**—Mill orders are not frequent and there is a continued disposition on the part of the mills to offer better deliveries. Store business in structural and other materials is good, however, and prices are well maintained. Small orders are filled here at the following prices:

Angles, 3 x 3 and over, 2.15c to 2.25c; beams and channels, 15 inches and under, 2.15c; small angles and architectural channels, 2.10c base; plates ¼ inch and heavier, 2.10c; 3-16 inch, 2.20c; No. 8, 2.20c; sheets (blue annealed) No. 10, 2.30c; No. 12, 2.35c; No. 14, 2.40c; No. 16, 2.50c; box annealed sheets, No. 18 and 20, 2.65c; Nos. 22 and 24, 2.75c; Nos. 25 and 26, 2.80c; No. 27, 2.85c; and No. 28, 2.95c. Iron and steel bars, $2 base; boiler tubes, 62 per cent off base; turnbuckles, 45 per cent off; rivets, 3.15c base; cold rolled shafting, 45 per cent off list; steel tire, 2.10c base.

**Coke.**—Prices are well maintained and there are some indications of some operations advancing their asking prices, but quotations made a week ago can still be called the market. There is not much activity, but some complaints of unsatisfactory shipments have been made. Prices in the leading coke producing districts are as follows:

| | |
|---|---|
| Wise County, Va., Furnace Coke, prompt shipment | $2.50 to 2.65 per ton |
| Wise County, Va., Foundry Coke | 3.00 to 3.25 per ton |
| Pocahontas Furnace Coke, prompt shipment | 2.60 to 2.75 per ton |
| Pocahontas Foundry Coke | 3.00 to 3.25 per ton |
| Connellsville Furnace Coke, prompt shipment | 2.85 to 3.00 per ton |
| Connellsville Foundry Coke | 3.25 to 3.50 per ton |
| New River Foundry Coke, prompt shipment | 3.35 to 3.60 per ton |
| New River Furnace Coke, contract | 2.85 to 3.00 per ton |

**Old Material.**—The market is quiet with an easy undertone. There is no quotable change in prices. Mills are buying very little and only small lots. We quote:

| | |
|---|---|
| Old No. 1 R. R. wrought net tons | $15.50 to 16.00 |
| Cast machine and fdy, net tons | 18.00 to 18.50 |
| Old iron rails, gross tons | 22.00 to 23.00 |
| Old steel rails (re-rolling) gross tons | 18.00 to 19.00 |
| Old short lengths, gross tons | 19.00 to 20.00 |
| Old iron axles, net tons | 25.00 to 26.00 |
| Heavy melting scrap, gross tons | 17.50 to 18.50 |
| Stove plate, net tons | 13.50 to 14.50 |
| Wrought turnings, net tons | 11.50 to 12.50 |
| Cast borings, net tons | 9.75 to 10.75 |
| Car wheels, gross tons | 23.00 to 24.00 |

## PHILADELPHIA.

### Large Sales of Basic at Low Prices—Lower Quotations Improbable.

Sept. 17.

**Pig Iron.**—Large sales of basic have been the feature of the past week. The total is reported to have been between 30,000 and 40,000 tons, and among the purchasers were large mills at Coatesville, Phoenixville, Pencoyd and this city. The prices paid ranged in the vicinity of $19.00. Some sales are reported to have been made as low as $18.75, but as a rule the figures were somewhat better. Of course, there was not much profit for the furnace men at those prices, but the sales are regarded as a hopeful sign of broadening interest. In many cases they cover the full capacity of furnaces up to the end of the year. There have also been some considerable sales of gray forge iron, especially to pipe founders. Prices have also been very low, some rather inferior iron having been sold at $18.00, with the general range about 50 cents higher. There is a constantly growing activity in foundry iron, and the number of inquiries for the last quarter indicates that there are many consumers who will soon be in the market. The improvement in sentiment noted last week continues, an important factor being the New York bond sale. Outside of the general effect on public opinion, this sale has an important bearing for eastern Pennsylvania, as the city has been an important buyer of material for new bridges, subway work and other public improvements. The bond sale brings in funds directly applicable to payments on these accounts. There is a growing demand for malleable iron, which is quoted at about $23.50, and low phosphorus, which has never shared the weakness of the other grades, is strong at $27.50. Prices, which are believed to have struck rock bottom at the low figures given, may be quoted as follows for the last quarter:

| | |
|---|---|
| No. 1X Foundry | $22.00 to 22.50 |
| No. 2X Foundry | 21.00 to 21.50 |
| No. 2 Plain | 20.50 to 21.00 |
| Standard Gray Forge | 18.50 to 19.00 |
| Basic | 19.00 to 19.75 |
| Low Phosphorus | 27.00 to 27.50 |

**Finished Material.**—There has been no substantial change in the situation, which is not as satisfactory as the mills could desire. There is as yet no lack of orders sufficient to keep the plants busy, but the tone of the market is quiet, and the future is viewed with some anxiety. There is a good demand for structural material and steel bars, but iron bars are inclined to weakness. Prices, which show no change, may be quoted as follows: Beams, channels and angles, according to specifications, 1.85c to 1.90c; refined iron bars, 1.80c to 1.90c; steel bars, 1.75c to 1.85c; plates, 1.85c to 1.90c.

**Old Material.**—There is a little buying, but it is for immediate consumption, and the mills show little disposition to cover future requirements. Prices, which continue to show declines, follow:

| | |
|---|---|
| Old steel rails | 17.50 to 18.00 |
| No. 1 steel scrap | 16.00 to 16.50 |
| Old steel axles | 20.00 to 21.00 |
| Old iron axles | 26.00 to 27.00 |
| Old iron rails | 19.00 to 20.00 |
| Old car wheels | 23.00 to 23.50 |
| Choice scrap R. R. No. 1 wrought | 17.75 to 18.25 |
| No.1 yard scrap | 16.25 to 16.75 |
| Machinery scrap | 18.50 to 19.00 |
| Low phosphorus scrap | 20.75 to 21.25 |
| Wrought iron pipe | 14.25 to 14.75 |
| No. 1 forge fire scrap | 14.00 to 14.50 |
| No. 2 forge fire scrap, ordinary | 10.00 to 10.50 |
| Wrought turnings | 13.50 to 14.00 |
| Axle turnings, heavy | 14.00 to 14.50 |
| Cast borings | 12.50 to 13.00 |
| Stove plates | 14.00 to 14.50 |

The furnace of the Leesport (Pa.) Furnace Co., which was blown out about a month ago for relining, was blown in again on Sept. 15.

## NEW YORK.

### Heavy Sales of Basic Pig—More Activity in the Market.

Office of THE IRON TRADE REVIEW,
Room 1005, No. 90 West St., Sept. 17.

**Pig Iron.**—Throughout the eastern territory the past week has witnessed greater activity than any time since early summer, and it appears probable that this condition will continue through the fall months. Estimates vary as to the amount of business recently closed, but 50,000 tons is perhaps a conservative figure, the bulk of this being basic iron taken by steel concerns from eastern Pennsylvania and New Jersey furnaces, which have made unusually attractive prices of late. In the aggregate, however, a very fair tonnage of foundry, chiefly of low grade, has been purchased, prices on most of these lots also being extremely favorable to the consumer. Pipe, pump, stove and other manufacturing interests in this territory and New England were among the purchasers. In spite of the marked concessions at which most of this busines has been taken, however, furnace interests for the most part are inclined to regard the outlook as distinctly encouraging, with the prospect of a strengthening of prices throughout the district. They figure that price cutting has been confined to a very few producers and that these have now secured about all the tonnage desired. There are reports that a curtailment of production is imminent, because of the blowing out in the early future of some important Pennsylvania and valley stacks, and the ore shortage is certain to have its effect before the winter is over. These factors, coupled with the known fact that there is still heavy buying to be done to cover needs of the current year, are taken as indicative of a turn for the better as soon as the long-expected buying movement sets in with full force. No. 2X foundry has sold below $19, furnace, for delivery to New England, though several furnaces are still holding out for $21. Eighteen dollars delivered in the New York district is reported to have been done recently on some low grade basic, while some iron higher in silicon went at about $20 delivered to the same consumer. We quote tidewater delivery as follows:

| | |
|---|---|
| Northern Foundry No. 1 | $21.00 to 22.00 |
| No. 2X Foundry | 20.00 to 21.00 |
| No. 2 Plain | 19.00 to 20.00 |
| No. 2 Southern Foundry | 22.00 to 23.00 |
| Basic | 19.00 to 19.50 |

**Ferro-Manganese.**—The market is distinctly lower, spot ferro now selling on the basis of $57, tidewater, with fourth quarter procurable at $55. These lower quotations have stimulated buying to a considerable extent and some good sales are reported. Heavy curtailment of production is reported from abroad.

**Finished Material.**—Bids have been received on 2,500 tons of steel for New York Central terminals, the St. Paul is still in the market for 2,500 tons and the Chicago & Northwestern is to close shortly on 1,000 tons. The Oliver building at Pittsburg and a mercantile building at Houston, Tex., are still pending. Lettings of the past week have not been large. The Levering & Garrigues Iron Works Co. of this city has taken 1,500 tons of steel for stables for the American Express Co. and about 500 tons for another section of the Brooklyn power plant of the Edison Co. The Fuller Construction Co. has taken a 500-ton naval hospital at Norfolk. The Penn Bridge Co. has secured the contract for a $60,000 Panama bridge in the face of brisk competition. In the west some fair railroad business has been placed and Pittsburg concerns have shared generously in the lettings for the open-hearth department of the Pittsburg Steel Co. About Chicago and St. Louis and in the northwest propositions which will probably develop later in the fall will call for about 50,000 tons of steel.

The August production of the American Bridge Co. broke all records, 58,700 tons being turned out. At the Pencoyd works, a new record of 10,600 tons was made. October will probably sweep away these records. Recent bookings of this interest include 1,800 tons for the Detroit Y. M. C. A., 500 for Delaware & Hudson bridges and 1,500 tons for an addition to the Phelan building in San Francisco. Three Chicago jobs, all over 1,000 tons, have been taken by independent interests. The New York Masonic Temple contract has gone to Wells Brothers.

Hoboken, N. J., was unable to find par bidders for the $95,000 worth of 4½ per cent bonds offered last week for water works purposes and an important cast iron pipe proposition is thereby tied up. Two weeks will elapse before the authorities will decide on a further course. The success of New York's bond sale will mean the early advertising for several large lots of pipe which have been held up for some time. The 2,000 placed recently by Orange, N. J., went to the Warren Foundry & Machine Co.

Steel rail business continues extremely light. There is an inquiry for an important tonnage for export in the market, but details are not obtainable. In bar iron business is not active. Sheets and plates are also quiet at unchanged prices.

We quote as follows: Angles, 3 to 6 inches x ¼ inch and heavier, 1.86c; beams, 3 to 15 inches, 1.86c; tees, 3 x ¼ and heavier, 1.91c; plates, carloads, tank, 1.96c; marine boiler, 2.26c; bar iron, 1.76c; soft steel bars, 7.76c; sheets, No. 28, black, 2.60c.

**Old Materials.**—An embargo is in effect at Coatesville, Pa., and the scrap situation shows no improvement in any direction. Wrought scrap is particularly dull, owing to the lighter business of the bar mills. Improved shipments of pig iron, coupled with its lower price, have made cast scrap considerably cheaper and have likewise brought down the price of borings, steel mills largely discarding their use. No large sales are reported. We quote gross tons, New York delivery, as follows:

| | |
|---|---|
| Old iron rails | $24.50 to 25.00 |
| Old steel rails, rerolling | 18.00 to 18.50 |
| Relaying rails | 27.00 to 27.50 |
| Old car wheels | 23.50 to 24.00 |
| Old iron car axles | 26.00 to 26.50 |
| Old steel car axles | 19.00 to 19.50 |
| Heavy melting steel | 14.50 to 15.00 |
| No. 1 railroad wrought | 16.00 to 16.50 |
| Iron track scrap | 15.00 to 15.50 |
| Wrought pipe | 11.75 to 12.25 |
| Cast borings | 10.00 to 10.50 |
| Wrought turnings | 11.50 to 12.00 |
| Heavy cast scrap | 16.00 to 16.50 |
| Railroad malleable | 15.00 to 16.00 |
| Agricultural malleable | 15.00 to 15.50 |
| Stove plate | 13.50 to 14.00 |
| Grate bars | 13.00 to 13.50 |

## BUFFALO.

### Malleable is Scarce—Very Little Buying, but Prices are Firm.

Sept. 16.

**Pig Iron.**—One of the prevalent features of the market just now is the great scarcity of malleable Bessemer. However, prices are very firm and there is a little more interest being manifested in the market by the buyers than heretofore. In fact, more so than for several months past, and it is confidently expected that buying for the first quarter will start within two weeks. Of course, owing to the frequent diminutive purchases of some of the large buyers, and the peculiar conditions prevailing, it is difficult to state positively that there will be a heavy buying movement for the first quarter. But reports from dealers, who have just completed trips through the eastern territory indicate that all of the foundries are very low in stocks and that they will be compelled to buy soon.

Locally there is no change in the market this week and practically no buying at all. However, there is no

curtailment in the shipments of iron from the furnaces, and the buyers are receiving all that they contracted for for the balance of the year. It is noticeable, though, that furnaces that have heavy commitments are, to a certain extent, defending their trade against the chief low sellers, and dealers generally hope to realize the prevailing prices on their first quarter, 1908, delivery.

A remark of interest to those active in the iron industry was made here today by a prominent southern dealer who is touring the country and observing the conditions in various sections. It was to the effect that, in his opinion, within the next 10 years new furnaces will be built for every one in use now, in order to meet the demand.

On account of the furnaces not having done very well this summer, gray forge is considerably lower than usual in comparison with higher grades. It is difficult to quote accurately, but the consensus of local opinion is that it should not exceed $20 just now.

Notwithstanding the small business in progress, there are several fairly large inquiries, and it is evident that consumers are now becoming interested in their deliveries for November and December. It is thought that the middle of October will see a good buying movement for delivery over the fourth quarter of this year and the first quarter of next.

For fourth quarter we quote the following prices:

| | |
|---|---|
| No. 1X Foundry | $22.75 to 23.00 |
| No. 2X Foundry | 22.00 to 22.50 |
| No. 2 Plain | 21.50 to 22.00 |
| No. 3 Foundry | 21.75 to 22.00 |
| Malleable Bessemer | 22.00 to 22.50 |
| Gray Forge | 20.00 to 20.50 |
| Charcoal | 27.00 to 27.50 |

## ST. LOUIS.

### Pig Iron Market Shows Greater Strength.

Sept. 16.

**Pig Iron.**—Inquiries last week indicated that quite a number of buyers were feeling the market with the intention of covering their requirements for the remainder of the year. The largest order received here was for 1,500 tons of No. 2 for delivery in equal quantities until Jan. 1. The order probably will be placed this week. Numerous inquiries also were received for smaller tonnage for immediate and future shipments. Prices, if anything, are slightly stronger; No. 2 being quoted at $18.50, Birmingham basis, for quick delivery, while the price of $18.00 has disappeared.

One large Chicago melter offered $18.00 for 100 tons of No. 2, Birmingham basis for prompt shipment, but the offer was declined by one of the largest furnace interests in Birmingham. Nothing less than $18.50 is hear of in this market for last quarter shipment. One firm, whose representative has just returned from near-by territory, reports numerous orders for small tonnage for prompt and last quarter shipment. This firm reports that a majority of the buyers are looking forward to better conditions during the fall. Another firm reports an order for 500 tons of No. 2 sold for immediate shipment, and that there is a shortage of Nos. 1 and 2; not a large surplus of No. 5, and that the largest stocks consist of No. 4, gray forge and mottled.

To sum up the situation, the market today shows decidedly more strength than it manifested during the previous week. Our quotations for immediate shipment, f. o. b. Birmingham, to which $3.75 freight is to be added, follow:

| | |
|---|---|
| No. 1 Southern | $19.00 to 20.00 |
| No. 2 Southern | 18.50 to 19.00 |
| No. 3 Southern | 18.00 to 18.50 |
| No. 4 Southern | 17.50 to 18.00 |

**Coke.**—The coke market is still strong, with 72-hour Connellsville quoted at $3.60 f. o. b. ovens on contract, and at $3.40 for quick shipment. Orders for immediate and future shipments are being booked freely. There is demand for smelter coke, and a few orders of good size are pending, but no very large business has actually been placed.

**Steel.**—Prices are unchanged; rails are at a standstill, but dealers report a good outlook for business to awaken. Some good-size orders are reported pending for structural material. Bars are in good demand with complaints still coming in about late delivery.

**Old Material.**—Dealers report the market as "all to pieces," with no indication of a resumption of business, although they decline to alter their last quotations, which were as follows:

| GROSS TONS | |
|---|---|
| Second-hand Relaying Rails, according to time of delivery | $29.00 |
| Steel rails (less than 3 feet) | 15.00 |
| Car wheels | 21.00 |
| Re-rolling steel rails | 16.00 |
| Heavy melting steel | 15.00 |
| Country steel mixed | 12.00 |
| Iron rails | 22.00 |
| **NET TONS** | |
| No. 1 R. R. wrought | $15.00 |
| No. 2 R. R. wrought | 14.00 |
| Iron splice bars and fish plates | 16.00 |
| Iron car axles | 22.00 |
| Steel car axles | 19.00 |
| Iron shaftings (3 to 6 inches) | 18.00 |
| Country wrought | 12.00 |
| Locomotive tires, smooth inside | 15.00 |
| Pipes and flues | 12.00 |
| Heavy machinery | 15.00 |
| R. R. cast (less than 300 pounds) | 14.50 |
| No. 1 Busheling | 13.00 |
| No. 2 Busheling | 12.00 |
| Boiler sheet and rings | 12.00 |
| R. R. cast borings (free of inferior quality) | 10.00 |
| R. R. wrought turnings | 13.50 |
| Machine shop turnings (free from brass) | 10.00 |
| Railroad malleable | 15.00 |
| Agricultural malleable | 14.00 |
| Cast stove plate | 11.00 |

## BRITISH IRON MARKET.

### Decline in Cleveland Warrants—Little Disposition to do Business.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., Sept. 7.

The northern pig iron market is not quite satisfactory, Cleveland warrants having declined on the week to the extent of 2½d. Yesterday's quotation at Middlesbrough was 54s 9d ($13.40), which was an advance on the day of 1½d. There is no great disposition in that market to do business, the depressing report from America being the principal reason. As usual, the Midland district shows a marked difference in position, such markets as Northampton, Derbyshire, Nottingham and Staffordshire all showing real animation. In South Staffordshire, especially, there has been a small rush of orders, enabling smelters to increase their quotations by 1s per ton. Buyers have postponed their orders till the last moment with the result that orders have been accompanied or quickly followed by urgent appeals for deliveries. In Northampton a big German order has been received, a somewhat unusual event, as these plums generally go to Middlesbrough. It seems likely that the activity will continue now for some time, as many buyers must now come on the market. The great dearness of fuel is tending to harden the market very considerably. The stocks at Middlesbrough are now almost stationary, but the tendency is still to decline. The increasing quietness of ship building has exercised a depressing influence on hematite, which is not in a good position.

## BIRMINGHAM, ALA.

### Important Discovery of Ore Reported—Market Quiet, but Firm.

Sept. 16.

A little better feeling prevails in the Birmingham district among the iron manufacturers. The iron quotations have not as yet improved any, but the inclination to show weakness is not so apparent now as it was a short time since, and prospects are so bright that a general recovery is looked for in a short while. Some inquiry has been received lately indicating a need for iron, which feeling

is advanced by urgent requests for deliveries on old orders just as quickly as possible. Almost all of the manufacturers are up in their deliveries. The railroads are a little slow

Much development is going on in the ore fields. Several prospectors are in the field also, every effort being made to increase the ore supply. There is a better production noticed, but still there is need for the product. It was given out a few days since that engineers of the Alabama Consolidated Coal & Iron Co. had discovered a large seam of ore under a seam in the vicinity of Gate City, in Jefferson county. The seam is to be mined through a shaft, the first shaft mining to be introduced into the ore fields. An estimate of the amount of ore in this seam gives figures up in the millions. It remains to be seen how much ore will be worked in this manner. Ore discoveries are reported recently in the vicinity of Talladega, in Talladega county

# METAL MARKET.

## NEW YORK.

Sept. 16.

**Copper.**—After a period of complete demoralization and great excitement, the copper market has apparently assumed a more settled condition, though on a level considerably below that heretofore prevailing. Copper today can be bought practically at 15c for electrolytic, a figure which, it was expected, would result in a heavy buying movement. So far, however, this has not been the case and the latest cut proved as big a disappointment as did the earlier reductions. The announcement by the United Metals Selling Co. on Saturday last of an official reduction in the price of electrolytic to 16½c brought with it panicky conditions on the stock exchanges, where reports were current that plans were being male for the wholesale closing down of smelting plants. It develops, however, that the curtailment of production is to be confined to the present to the abandoning of Sunday work and similar retrenchments on a moderate scale. The official reduction made Saturday again fell short of reaching the market level, which is about as follows: Lake, 16c to 16½c; electrolytic, 15¼c to 15¾c; casting, 14¾c to 15¼c.

**Pig Tin.**—The market is somewhat more active, chiefly because of improved buying on forward account. This resulted from a marked decline in London, which, coupled with reports of decreased consumption in this country, brought about a sharp break. Current business is being done at 36c to 36½c.

**Pig Lead.**—The market is dull and featureless, except for the action of the American Smelting & Refining Co. on Friday last in reducing its price to 4.75c, f. o. b. New York. Outside brands are somewhat lower.

**Spelter.**—The market is weak, with buying limited and smelters accumulating large stocks. The level of the market is about 5.25c., New York, and 5.10c. St. Louis.

**Antimony.**—The tone is slightly improved, because of continental reports that there is a scarcity of crude metal. We quote Cookson's at 10c to 10½c; Hallett's, 9c to 9½c; ordinary brands, 8½c to 9c.

## CHICAGO.

Sept. 17.

New and old metals are down this week. Demand is of a very light order, being wholly for small lots for quick shipment. Lake copper is quoted locally at 18c to 18½c, and casting at 17c to 17½c, carload lots. Pig lead, desilverized, 5c to 5.10c in 50-ton lots; corroding, 5.25c to 5.35c in 50-ton lots; car lots, 2¼c per 100 pounds higher. Pig tin, 38½c to 38¾c, carload lots. Spelter, 5.25c car lots. Sheet zinc has dropped to $7.50, list, f. o. b. LaSalle in car lots of 600-pound casks. Cookson's antimony, 13c; other grades, 11½c to 12c.

Dealers are offering old metals in plentiful volume, but smelters and refiners are buying very sparsely, if at all. The latter are offering the following quotations: Copper wire, 13c; heavy copper, 13c; light copper, 12c; heavy red brass, 12c; heavy yellow brass, 10c; light brass, 7c; No. 1 red brass borings, 10c; No. 1 yellow brass borings, 8c; brass clippings, 10c; tea lead, 3¼c; zinc scrap, 3½c; zinc clippings, 3¾c; tin foil, 27c; tin pipe, 32c; pewter, 22c; aluminum clippings, 30c; aluminum cast scrap, 27c; electrotype plates free from wood, 4c; electrotype dross, 2½c; stereotype plate, 5c; stereotype dross, 2¾c; prime slab zinc dross, $70 per ton.

## ST. LOUIS.

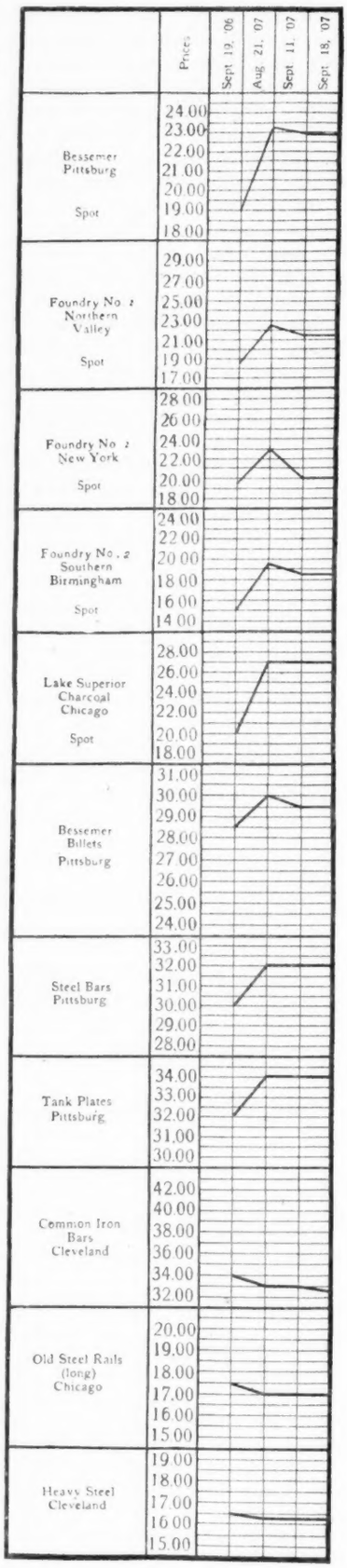
Sept. 16.

**Lead and Zinc.**—The plan to restrict the output in the Joplin district seems to have subsided.

Zinc prices are unchanged from the previous week's report, the highest prices resting at $45.00 per ton on an assay basis of $40.00 to $43.00 per ton of 60 per cent lead.

The highest price a year ago was $46.00, and the lease price was $41.00 to $43.00.

**PRICE CHART.**



## LEAD WORKING CAPITAL

(Continued from page 447.)

manufacturing, selling, administrative, head district office expenses, and management's commission, as shown in the accompanying profit and loss statement, were $3,100,606.70, as compared with $1,596,955.27 for the preceding year.

Net earnings applicable to surplus, after deducting all charges, including bond interest, sinking fund and depreciation, were $2,379,096.98, as compared with $1,009,521.76 for the preceding year, and a loss of several hundred thousand dollars for the year ending July 31, 1905, the net result to date being a surplus of $3,274,256.87.

Attention is called to the amount of the inventory, which is the lowest for more than a year, being some $700,000 below the maximum, and far less than must be usually carried. The low inventory is reflected in the large cash balance.

Liberal provision, in accordance with the previous year, has been made for depreciation of all buildings, machinery and equipment, and deducted from the gross earnings, the amount so deducted being for the year $233,681.58.

In addition to provision for depreciation, liberal charges have been made for repairs, renewals and maintenance (including patterns and relining of furnaces) amounting to $974,190.50, and absorbed in manufacturing costs.

During the year $462,172.62 was charged to capital account on a conservative basis for real estate, additions, new construction, machinery and equipment. Of the amount named, $364,737.18 was expended in connection with steel casting plants, which, together with previous expenditures for the same purpose, makes a total of $1,809,659.18 since the formation of the company. Of the total amount only $728,603.12 has been expended during the past two years, and only such additions to plants have been made as the necessities of the business required and to balance departments. The result—a saving in costs, exclusive of materials, of over $3 per ton, a greater proportion of good castings, a production for the year of more than 25 per cent over the preceding year and nearly 55 per cent in excess of the largest previous year, fully justifies the expenditures.

During the ensuing year, further expenditures for additions and improvements (some of which are now in progress) will be made, particularly at the Pittsburg works, the amount already authorized being approximately $250,000.

New methods in accounting, costs and records mentioned in the last annual report have been proven accurate and dependable, and hereafter quarterly reports of earnings will be made public.

All borrowed money has been repaid, and all due and approved current bills have been paid, advantage being taken of all cash discounts.

In the treasury report submitted, an estimate is made of the company's available working capital and requirements. That estimate agrees substantially with the comptroller's independent statement of the average actual working capital employed during the year, and both show that all the present available resources of the company are required for the conduct of its business. It is, therefore, strongly recommended that the accumulated surplus, as shown by the balance sheet, be reserved and set aside as necessary working capital, and it is recommended that such reserve be applied as follows.

(a) $350,000 to be written off property account in respect of special replacements and improvements heretofore charged thereto.

(b) $300,000 to be credited to depreciation reserve account to provide for special replacements and improvements which may be necessary to keep pace with changes in manufacturing conditions.

(c) $290,625 to be credited to bond sinking fund reserve in respect of the amount of profit on the investment in the Commonwealth Steel Co., which has been credited to profit and loss account, but which is not available for distribution, as the entire proceeds of the sale of the investment were retained by the sinking fund trustee.

(d) $2,333,631.87 to be credited to special reserve for working capital to be applied for specific purposes at the discretion of the board of directors.

Subsequent earnings, after providing from them for bond interest, sinking fund payments, depreciation and other usual charges, can, under present conditions, probably be safely distributed without endangering the company's standing and prosperity, although it should be understood that when business reaches even the maximum of the past year the company will at times be a borrower of money. Therefore, a further permanent surplus should be gradually accumulated to provide for contingencies and the natural growth of the company.

In accordance with the foregoing, if and when quarterly reports of earnings and business conditions justify, it is recommended that dividends be declared.

Aside from ordinary transactions, the principal items of interest (all of which have been authorized or approved by the board) are as follows:

The stock of the Commonwealth Steel Co., formerly owned by this company, was sold at a large profit as of Nov. 1, 1906. The entire proceeds, $400,000, were paid to the mortgage trustee, which, together with the October, 1906, regular sinking fund payment and accrued interest, enabled the trustee to purchase for the sinking fund $535,000 par of the company's outstanding bonds.

The idle property owned by the company at Earnest Station, near Norristown, Pa., was sold for $26,250, and the proceeds paid to the trustee of the mortgage of the American Steel Casting Co., which covered the property, and was used by the trustee to buy and retire $25,000 par of American Steel Casting Co. bonds, which are a prior lien on certain properties of this company.

Some vacant property in the vicinity of Chattanooga, Tenn., belonging to this company, but not required for its operations, was sold at a satisfactory price and the proceeds covered into the general funds of the company.

Small amounts of the capital stock of the Davis Locomotive Wheel Co., and Meeker Foundry Co., which this company inherited from its predecessors, have been sold and the proceeds covered into the general funds.

The Pittsburg Works previously stood on leased ground, for which short-time leases only could be obtained. This did not justify either the erection of adequate buildings or the installation of proper equipment. During the year, the land came into market for the first time, and was purshased for $117,500, and is included in the additions to property, and the plant is now being improved and enlarged.

At the Alliance Works three small lots necessary to round out the property and facilitate operations were acquired.

At the Hammond Works, some adjoining land required for the company's growth and operations was acquired, and is included in additions to property.

A large contingent liability of the company, dependent on patent litigation, inherited from one of the old companies, has been settled on favorable terms, the settlement including the assignment to this company of the valuable patents involved, and the cost thereof has been charged to profit and loss.

Other valuable patents have been acquired at very reasonable prices, and the cost charged to profit and loss.

Regarding the business outlook, it may be said that, while orders on hand are somewhat less and prices somewhat lower, and the general prospect not so promising as a year ago, it is believed there will be some profit—the amount depending upon general business conditions.

### AMERICAN STEEL FOUNDRIES—GENERAL PROFIT AND LOSS ACCOUNT, YEAR ENDING JULY 31, 1907.

| | | |
|---|---|---|
| Earnings from operation of plants and of subsidiary companies (after deducting manufacturing, selling, administrative and head and district office expenses) | | $2,893,641.97 |
| Other Income: | | |
| Interest, discount and exchange | $37,192.08 | |
| Income from investments | 26,890.99 | |
| Miscellaneous | 8,783.22 | |
| | | 72,866.29 |
| Profit on sale of Commonwealth Steel Co. stock | | 134,098.44 |
| Total income | | $3,100,606.70 |
| Deduct: | | |
| Interest on borrowed money | $ 39,635.81 | |
| Interest on bonds | 233,192.33 | |
| Sinking fund for 10-30 year gold bonds | 105,000.00 | |
| Depreciation of buildings, plant and equipment | 233,681.58 | |
| Patents purchased and settlement of contingent liability in patent litigation inherited from one of the old companies | 110,000.00 | |
| | | 721,509.72 |
| Balance, net income | | $2,379,096.98 |

# THE IRON TRADE REVIEW

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## THE EFFICIENCY OF ROLLING STOCK.

Poor's railroad statistics for 1906 show a total of 1,979,667 freight cars owned by the railroads reporting, an increase of 222,562 cars for the year. This is by far the largest gain for any year, and with the exception of 1903, which showed a gain of 120,201 cars, is more than double the gain shown in any previous year.

In tons of freight moved one mile, there was a gain in 1906 over 1905 of 15.7 per cent. This was the largest gain, in point of tonnage, in the history of American railroading, and the largest in point of percentage for eight years.

There was a mild shortage of cars in 1906, but the shortage did not compare in any sense with that which developed in 1902 and seriously crippled many branches of industry. Thus far this year, the car building shops have been turning out cars at least as rapidly as they did in 1906, and the prospect is that the end of this year will find the railroads to have made about as large a gain in number of cars as they did in 1906.

In the past few months, statements have frequently been made in interested quarters that the railroads would have to continue indefinitely their policy of buying a large number of cars each year. The statistics do not seem to bear out this contention. With an increase of 222,562 cars during 1906, and assuming an increase of only about 200,000 cars this year, there would be a total for the two years of 425,000 cars. This is equal to the entire gain from 1899 to 1905, six years of great prosperity. This is equivalent to saying that the railroads have been extremely liberal indeed in their car purchases in the past two years, so liberal that one cannot expect them to continue such a heavy outlay unless there are the gravest reasons to compel them to do so.

These reasons hardly exist, and the railroads are certainly awake to the fact. Their earnings have not increased in proportion to their expenditures for improved facilities, and it is very difficult for them to command money. Furthermore, there is not the prospect that the call for freight movement will increase in the next year or two as it has by the record breaking jump from 1905 to 1906, as shown by the statistics of ton-mileage. It is admitted on all hands that a lull, relatively speaking, is in store for business in general, but even were all conditions to remain as uniformly prosperous as they have have been, it is not probable that the total freight movement would continue to grow at the extremely rapid pace just set.

A comparison of the total number of cars with the ton-mileage of freight, over the past dozen years, does not make a showing altogether gratifying to railroad managers. In the accompanying table we present the number of freight cars reported by Poor's Manual for each of the past 12 years, together with the number of tons of freight moved one mile in each year. We show in a separate column the increase in the number of cars, over the preceding year, and have divided the number of ton-miles by the number of cars, for each year, dividing the quotient again by 365, thus producing a column of figures which represents approximately the average number of ton-miles of freight movement accomplished by each car per day. Of course the result is not perfectly accurate; the number of cars is reported at the number existing at the end of the year, instead of the average number in service, and private cars are not reported. Nevertheless, the results are amply accurate for comparative purposes.

From the table it appears that the average efficiency of the freight cars has increased from a movement of about 200 ton-miles per day in 1895 to about 300 ton-miles in 1906, a gain of 50 per cent in 11 years. The rate of gain was greatest from 1895 to 1901, there being then a recession to a lower point in 1904, with a rally to a higher figure than ever in 1906. Some of the recession was due to less business being offered, but the recession in 1902 was doubtless due altogether to the freight congestion, which quite crippled the facilites.

There are no statistics of average carrying capacity per car. Were there such, it would be possible to determine accurately whether the gain in efficiency has been made by heavier loads per car, or greater movement per car. It appears, however, perfectly safe to assume that the average carrying capacity per car has increased by more than 50 per cent in the 11 years 1895 to 1906. The 100,000-pound steel car was hardly a factor in 1900, yet in that year the average ton-mileage per day of all cars was 286, against 300 in 1906, six years later. Certainly there can be no question that the all-steel and steel underframed cars which have been put in service from 1900 to 1906 have increased the average carrying capacity of all cars by more than the 5 per cent represented by the increase from 286 to 300. This would easily be the case even were it not the fact that many of these high capacity cars displaced old small cars, which were abandoned through their own

inefficiency or because they interfered with the free use of the cars of large capacity.

With this view of the case, it is quite certain that the average rate of movement of cars with paying freight in them has considerably decreased. With several hundred thousand cars of 80,000 to 100,000 pounds capacity added, and with many small cars abandoned, it is not to be believed that the average capacity of all cars has not increased more than 50 per cent since 1895, or more than 5 per cent since 1900. These comparisons err on the side of conservatism, since as a matter of fact the railroads were not under nearly so much pressure in 1895 as they were in 1906, nor were they under so much pressure in 1900 as in 1906. Had the railroads been under as much pressure in 1895, with their then equipment, as they were in 1906, they would undoubtedly have made a considerably better record in ton-mileage.

The conclusion is unavoidable, therefore, that the railroads are not getting nearly as great efficiency out of their cars, having regard to number and carrying capacity, as they did six years or eleven years ago. Must the new condition be accepted as one which is to remain, or is it to prove but temporary? It is hard to believe that American railroads can never do better than get 300 ton miles per day of paying freight out of a car, the equivalent of 10 miles if the average capacity is 30 tons, or 15 miles if the average capacity is 20 tons. If the cars were worked but one-fourth the time, i. e., if they spent 12 hours idle, 6 hours moving as empties and 6 hours moving with freight, this would be 10 to 15 miles in 6 hours, or 1.7 to 2.5 miles per hour, when actually at profitable work. Making the comparison in another way, it appears that if the freight is moved at the rate of 10 to 15 miles an hour, then the cars work an average of but one hour in 24. Again, the actual statistics show that the average length of haul in 1906 was 162 miles. At the speeds and loads we have been considering, this means that on an average a car carries a load to destination during 13 hours, running time, but consumes the balance of 13 days in idleness.

During the great freight congestion of 1902-3, the railroads complained of a lack of yard room and of various other points of inefficiency, outside of the lack of cars, which prevented their moving the freight with facility. They have spent enormous amounts of money in additional yard capacity, in cut-offs, and other devices to expedite movement. The effect of these improvements is not yet seen, but the results must come. If the purpose is not accomplished, there must be further improvements, and while the railroads do not like to be given advice, the layman who reflects upon the great increase in the carrying capacity of the average car, and then glances at the subjoined table showing the ton-mileage per car actually accomplished, can hardly avoid concluding that there is great room for better management of the facilities the railroads already possess. Their next development will undoubtedly be along the line of getting better results from the facilities they have spent so much money to acquire, rather than in largely increasing those facilities. A steady replacement of obsolete types of car with modern types must of course go with this program.

**Freight Cars and Ton Mileage.**

| Year. | Number of freight cars. | Gain from previous year. | Total tons moved one mile. | Ton miles per car per day. |
|---|---|---|---|---|
| 1895 | 1,230,798 | | 88,567,770,801 | 202 |
| 1896 | 1,245,640 | 14,842 | 93,885,853,634 | 207 |
| 1897 | 1,234,972 | 10,668* | 97,842,569,150 | 217 |
| 1898 | 1,284,807 | 49,835 | 114,566,173,191 | 244 |
| 1899 | 1,328,084 | 43,277 | 126,991,703,110 | 262 |
| 1900 | 1,350,258 | 22,174 | 141,162,109,413 | 286 |
| 1901 | 1,409,472 | 59,214 | 148,959,303,492 | 290 |
| 1902 | 1,503,949 | 94,477 | 156,624,166,024 | 285 |
| 1903 | 1,624,150 | 120,201 | 171,292,198,079 | 289 |
| 1904 | 1,691,427 | 67,277 | 172,627,299,384 | 280 |
| 1905 | 1,757,105 | 65,678 | 187,375,621,537 | 292 |
| 1906 | 1,979,667 | 222,562 | 216,653,795,696 | 300 |

*Decrease.

**Steel Company Wins.**—The Dominion Iron & Steel Co. has obtained a favorable decision in its action aginst the Dominion Coal Co. to recover damages to the extent of $15,000,000 for breach of contract in not supplying a satisfactory grade of coal.

## DECREASED SHIPMENTS

### Owing to Rainy Weather—Strike Conditions Less Troublesome.

Office of THE IRON TRADE REVIEW,
411 Providence Bldg.,
Duluth, Sept. 16.

Rainy weather at the head of the lakes kept down the ore shipments during the week ending Sept. 14 and in consequence the quantity of ore sent down the lakes was much less than had been counted upon. A total of 1,058,494 tons was shipped from Duluth, Superior and Two Harbors as compared with 824,226 tons a year ago. The shipments from each dock are as follows: Duluth 444,873 tons, last year 347,343 tons; Two Harbors, 323,382 tons, last year 285,924 tons, and Superior 290,239 tons against 190,959 tons a year ago.

Strike conditions and consequent ills are gradually growing less noticeable on the Mesabi range. Guarding of the properties is still maintained, but there is little evidence of the trouble the presence of the deputies may be preventing. The diminishing of the output of underground mines because of the labor shortage is being made up in quantity by working the open pits a little harder, but the normal routine of ores and ore mixtures has been more or less disturbed by the lessened output from certain underground mines.

## LARGE DIVIDENDS EARNED BY THE WESTINGHOUSE AIR BRAKE CO.

At a meeting of the directors of the Westinghouse Air Brake Co., Pittsburg, a resolution was adopted recommending an increase of the capital stock from $11,000,000 to $14,000,000, and the payment of the stock dividend of 25 per cent therefrom. It will be submitted to the stockholders for approval at the annual meeting on Oct. 1.

The annual report for the year ending July 31 last, showed $3,851,839 available for dividends, which is equal to 35 per cent on the capital stock, against 32.9 per cent in 1906; 26.92 per cent in 1905; 21.47 per cent in 1904 and 30.88 per cent in 1903. The total income for the year amounted to $11,230,409, an increase of $684,013 over 1906. The annual report says that the favorable net results of the year were due to the large volume of business, the introduction of improved brake appliances and to the increased diversity of the company's manufacturing and collateral interests. These results have been achieved without advancing the price of the company's product, notwithstanding the increase in the cost of raw material. Charges aggregating $393,243 were authorized for depreciation.

## WORKED UNDER PROTEST

### On the Quebec Bridge—Testimony Concerning the Recent Disaster.

Toronto, Can., Sept. 14.—The investigation by a Royal Commission of the Quebec bridge disaster commenced on Monday, Sept. 9. The evidence presented during the earlier part of the week mainly dealt with the organization of the company and the duties and responsibilities of the officials in charge of the work. Later, several survivors of the disaster were examined and some new features brought out. Eugene Lajeunnesse, one of the employes, testified that there was a bend in one of the cantilever arms of about two inches, but there was no break or crack. A workman named Ingwall stated that at the time of the accident the traveler was hoisting up a couple of big timbers. Personally he had never seen any defects, but had heard others talk concerning the bottom chord. The night before the accident, a number of the men looked at it and said it was kinked. Alex Boisvert stated that every time a piece of metal fell the bridge vibrated and the shock made the men afraid. D. B. Haley marked on the plans, panels of the chord which he said he had seen to be bent, when standing on the third panel of chord 9. In this chord, both center lacings were bulged and there there were two or three bends in the rib in panel 9, two or three feet in length. He also noticed that the lacing was bent in chord 8. At the splice where chord 9 joined the other, he could see that, although the cover plate was there, the joint had never been properly riveted. He had reported the matter to three of the foremen but not to Supt. Yenser, who would have laughed at him. Yenser was opposed to the carrying of the traveler further out on the bridge, and did so on compulsion and against his better judgment. Witness heard Yenser strongly remonstrate on this point to Engineer Birks. When Birks was spoken to of the deflected cord, he said, "You fellows are getting prematurely alarmed. The thing is perfectly safe." Dominique McCumber worked on the bridge until 2 o'clock on the day of the collapse. He saw a defect in the sixth joint from the pier on the down stream side. Edward Britton, electrician on the bridge, said that in the office he heard Yenser and McLure say that two or three chords were badly buckled.

Steel manufacturers are overwhelmed with orders and contracts are much delayed in consequence. The Temiskaming and Northern Ontario Railway Commission recently called for tenders for bridge work. Although the steel pieces required were only about 70 feet long, no company would undertake to fill orders in less than six months.

The first sod for the erection of the plant of the Imperial Steel & Wire Nail Co. at Fort William, Ont., was turned on Sept. 10 by Mrs. J. A. Currie. The site, which comprises 10 acres, adjoins the Canada Iron & Foundry Co. The main building will be 600 by 70 feet and the warehouse 60 by 200 feet. A force of 250 men will be employed.

The directors of the Dominion Iron & Steel Co. have decided to undertake the further development of their iron ore deposits at Wabana, Newfoundland, and in addition to supplying their own plant at Sydney, N. S., will export ore. The extent of the deposit is estimated at 200,000,000 tons. The company will also develop its own coal areas, so that it will not have to depend for a suppply on outside collieries.

## WHILE UNIONS QUARREL

### Negroes Are Being Employed in Southern Rolling Mills.

Birmingham, Ala., Sept. 16.—As a consequence of the contention among the two organizations among the rolling mill employes in this district, the Amalgamated Association of Iron & Steel Workers and the Sons of Vulcan, negro labor is being introduced into the big Birmingham mills and the puddling department is on with prospects of the finishing department being started in the near future. The Republic Iron & Steel Co. had a contract with the Amalgamated Association. The Sons of Vulcan had made great inroads among the men employed in the puddling forges. The Sons demanded a contract and the company is said to have declined it, having the contract with the Amalgamated which has men in the finishing department, as well as in the puddling department. A strike was declared by the Sons of Vulcan which handicapped the plant and finally the mills were shut down for repairs. When smoke was seen rising from the big stacks at the mills recently, considerable surprise was caused and inquiry revealed the fact that negroes were being employed in handling muck iron. It is stated further that negro labor will be used in the finishing department just as soon as the same can be procured. The Bessemer rolling mills (Tennessee Coal, Iron & Railroad Co.) have been using negro labor right along in their plant for the past two years and have been meeting with good results. The outcome in Birmingham is being watched. It is reported that a number of the former employees of the Birmingham mills are considering moving to Pennsylvania.

## CINCINNATI MACHINERY MARKET.

Office of THE IRON TRADE REVIEW,
First National Bank Bldg., Sept. 17.

It is difficult to note any change in the situation as compared with a week ago. There is a fair run of orders coming in right along and cancellations are few. It is thought that the "scare" of the early summer has spent itself and confidence in the coming year is freely expressed.

There has been some tendency to give preference to those orders which were for immediate installation, and these have been rushed through in some cases instead of dealers' stock orders, as it was known that deliveries were improving and there has been some pressure to supply machines to the customer actually in need to reduce the chance of having the order cancelled.

There has been unusual effort made in operation in order to make deliveries as promised or to anticipate them if possible, and this may to some extent account for the catching up on deliveries. Some plants have made record outputs during the last two months.

But little stock is being made and practically all machines coming through the shops go out on orders.

Boiler and tank business is good and many installations are under way in this territory.

The Bennett Steel Furnace Co. has purchased a site for a foundry on Spring Grove avenue, 75 feet x 125 feet. Plans have been made for a two-story foundry building which will cover the entire lot. Work upon the improvement will be started shortly.

The John J. Bruce Foundry Co. has secured a lot 150 feet x 400 feet on Colerain avenue between Queen City avenue and Draper street and will erect a new foundry building on the site, part concrete and part steel construction.

## FURNACE MAY RESUME.

### Effort to Lift Receivership at Ironton —Narrow Escape of Iron Manufacturers.

Ironton, O., Sept. 17.—Cleveland attorneys, representing the Lake Erie Ore Co., and J. K. Pollock, of Cincinnati, representing other creditors of the Union Iron & Steel Co., were here Saturday in consultation with Receiver Charles Peters relative to the raising of the receivership. A plan is on foot whereby the creditors of the company can be cared for and it is thought there will be an immediate reorganization of the company and the putting of the local plant in blast. The receiver last week settled labor claims amounting to about $2,000. The furnace here has been a paying proposition for years and has made $500,000 for the company, the financial embarrassment being due to losses at the southern furnaces.

While the Ironton Furnace Co. expected to be making iron at its new furnace the first of the year, there is some doubt that this hope will be realized. Record-breaking time was made in the construction work, but it is now feared that it will be impossible for the firm having the contract for brick to deliver material for lining as rapidly as needed. The stacks and stoves have been completed and the main buildings are under roof. One of the large engines, furnished by the Wymer Engine Co. of Lebanon, O., has been erected. The engines are of 680-horsepower and there will be two of them, with a double battery of boilers.

The Ohio Firebrick Co., Incorporated at Wellston, with W. B. Cherrington, president and general manager; J. L. White, vice president, and J. M. Partridge, secretary-treasurer, will establish a plant for the manufacture of fire brick by a new process. The process is the discovery of an English chemist and it is claimed that brick, when given the chemical treatment, will stand a heat of 4,000 degrees. It is said that no special grade of brick is required and that common varieties can be successfully treated. The success of the venture would mean much in all lines where linings are needed to stand high temperatures. Judge J. L. White, of New York, representing the discoverer of the process, P. F. Howland, of New York, and E. B. Bingham, of Toledo, promoted the company.

Col. H. A. Marting, president and general manager of the Marting Iron & Steel Co., the Ironton Furnace Co., and other local institutions, the Battelle Iron Co., and the Columbus Iron & Steel Co., and Oscar Richey, president and general manager of the Kelly Nail & Iron Co. and largely interested in the Sarah Furnace Co., the Ashland Steel Co. and other iron industries, had a miraculous escape from death on Thursday night of last week. While returning from the county fair in an automobile, a Norfolk & Western train struck the machine at a crossing, hurling it 50 feet and turning it over. The two iron manufacturers were very severely bruised and were incapacitated for several days, both being pinioned under the wreckage of the machine.

The mounters at the Foster Stove Co. plant struck last week for a nine-hour day and a ten per cent advance in wages. The company has declined to accede to the demands and the plant was closed. Conferences have been held, but no settlement could be reached.

Should the local plant of the Union Iron & Steel Co. come to a sale, which is improbable in view of profits being made in iron, the promoters of the new furnace just north of Ironton would bid on the property. This statement was made by John M. Norton, one of the promoters. The stock books of the new company are still open and over $100,000 of the $150,000 desired, has been subscribed.

The Smokeless Fuel Co., a West Virginia corporation, has sued the Norfolk & Western railway company for possesion of twelve cars of coke said to be held unlawfully on its tracks in Ironton, and also for $1,100 damages alleged to have been sustained by the detention.

The Malleable Iron Co. has one of its main buildings in Ironton completed and the foundations are under way for the others. It will be well into the new year before the plant is ready for operation.

The Portsmouth Casting Co. has installed new machinery and will take up the work of getting out plate, boiler, stack and tank materials.

While all the machinery has been installed, the York Portland Cement Co. of Portsmouth has been unable to complete the last of its big buildings in time to make a trial run the first of October, but will be ready for operation about the middle of the month

The Belfont Iron Works Co. of Ironton, will very likely sell its keg factory site to the Norfolk & Western to permit of the company eliminating a compound curve in the double-tracking plans. The company wants $15,000 and the railroad offers $10,000.

President Glessner, of the Portsmouth Steel Co., announced on a visit to the Portsmouth plant that the company had orders ahead for a steady run through the fall and winter.

## NEW ENGLAND FOUNDRYMEN.

The New England Foundrymen's Association, after successful outings during the summer, resumed its regular monthly meetings at the Exchange Club, Boston, on Sept. 11. The meeting was called to order at 5:45 p. m. with President Wm. H. Bense in the chair.

The Atwood-Morrison Co., Stonington, Conn., was elected to membership. A rising vote of thanks was extended to Providence members of the association for the delightful program provided at the August outing.

The president reported the deaths of A. F. Nichols, of Nichols Foundry Co., Lowell, Mass., and D. B. Lincoln, of Wollaston Foundry Co., Wollaston, Mass. The chair appointed Messrs. Doherty and Lanigan as a committee to prepare resolutions anent the death of Mr. Nichols, and Messrs. Carpenter, Nutter and Fitch as a committee on Mr. Lincoln.

The meeting then adjourned to dinner, after which the chairman introduced C. H. Bradley, superintendent of Farm and Trade School, Boston, who gave a very interesting talk on the objects of that institution and the methods employed in educating boys to practical business in the various walks of life.

At the conclusion of the address, the next speaker introduced was Henry F. Clark, of the United States Lighthouse Engineer's office, who spoke largely on the construction of lighthouses and how they are conducted.

**Will Soon Resume.**—Notwithstanding the fire on Sept. 13, which destroyed the greater portion of the building of rolling mill of the Falls Hollow Staybolt Co., Cuyahoga Falls, O., the principal machinery was not damaged to any great extent, and the company will be able to execute orders with the usual diligence within a few days.

## PERSONALS.

Daniel R. Norton has been engaged as manager of the Security Steel & Iron Co., Troy, N. Y.

J. S. Ralston, president of the Ralston Steel Car Co., Columbus, O., has returned from an extensive trip abroad.

Charles J. Rice has been made superintendent of the blast furnace plant of the Norton Iron Works, Ashland, Ky.

Edward Quebbeman has been appointed St. Louis agent of the Portland Cement Co. with office in the Chemical building, St. Louis, vice J. C. Van Doorn, who was transferred to the Minneapolis plant.

Richard P. Tell, vice president of the National Brake & Electric Co., Milwaukee, has recovered from his recent attack of pneumonia and will soon be able to resume his connection with the company.

Theodore H. Bailey, assistant general manager of the General Electric Co., has been appointed general manager of the Kobusch Automobile Co., St. Louis, and has already assumed charge of his new business.

Henry H. Rogers, director of the United States Steel Corporation and the Amalgamated Copper Co., about whose death wild rumors were current on Wall street last week, has been enjoying a cruise on his steam yacht with a party of friends. It is stated that there is no cause for alarm in his condition.

Cortland S. Jones has been appointed to the position of instructor in rolling mill design in the school of applied science of the Carnegie Technical Institute, Pittsburg. Mr. Jones is a graduate of the Georgia School of Technology, and has been engaged for some time in practical work with the A. Garrison Foundry Co., the Illinois Steel Co. and the Lackawanna Steel Co.

## OBITUARY.

David B. Reeve, chief engineer of the New England Steamship Co., was found dead Sept. 12 on board the steamer City of Taunton at Newport, R. I.

John C. Darst, age 56, treasurer of the Continental Bridge Co., Chicago, died Sept. 5 at that city. Mr. Darst has been a resident of Chicago for over 25 years, and during the most of that time, was senior member of the firm of Darst & Hughes, bridge builders.

Otis F. Pettee, of Newton Upper Falls, Mass., aged 54, died suddenly Sept. 6 of heart trouble. For many years he was treasurer of the Gamewell Fire Alarm Telegraph Co., but retired from active business about ten years ago. He was a son of Otis Pettee, one of the founders of the Saco & Pettee Machine Co.

William Graff, age 81, formerly well known in Pittsburg manufacturing circles, died Saturday, Sept. 7, at Dillon, Colo. Mr. Graff was born at Blairsville, Pa., and after coming to Pittsburg, engaged in the foundry business as the firm of Graff & Co. in 1855. He continued in this busines for several years, and then with A. M. Byers, he organized the firm of Graff, Byers & Co., manufacturers of pipe. A few years later, he retired from the firm and erected a pipe mill at Herrs Island, which he operated until he disposed of his interest to the Pittsburg National Tube Co. He then took up his residence in Colorado.

D. Willis James, senior member of the firm of Phelps, Dodge & Co., and actively interested in a large number of copper concerns, died Sept. 13 at the Mount Washington hotel, Bretton Woods, N. H., of heart disease. He was born in Liverpool, Eng., and was about 75 years of age. Aside from his prominence in the New York metal market, Mr. James was widely known as a philanthropist, having given largely for the advancement of art and education. He was a member of many clubs, of the American Geographical Association, the American Museum of Natural History Association and the National Academy of Design. He had been in business in New York for more than a third of a century.

## MORE PROMPT DELIVERY

### On Machine Tools—Some Important Inquiries Expected Soon.

Office of THE IRON TRADE REVIEW,
Room 1005, No. 90 West St.,
New York, Sept. 17.

There is little to feature the current machinery market. Conditions continue much as they have during the entire summer, with a good run of miscellaneous business, but no large transactions to enliven the monotony. There is reason to believe, however, that inquiries will be sent out shortly for more important lots of tools, as the railways generally have held off buying about as long as is possible. Deliveries are somewhat improved. In fact an instance was cited to the writer this week of a large manufacturing concern inquiring for a radial drill and finding in transit one on which a cancellation order had gone in and which could be diverted. Another heavy tool of special design was turned out in one week's time by a western manufacturer. As against this evidence of prompt shipment, however, must be weighed the continued demand for second hand machinery, which sells largely because it can be had without delay. One concern which purchased heavily of the New Jersey Machine Co.'s equipment has disposed of almost all the machines secured.

There is considerable activity in cranes at present, inquiries being more numerous than formerly and several good sales being reported. The General Electric Co. for its Schenectady works has purchased two Niles cranes of 30-ton and 50-ton capacity. These are to be installed in a storehouse. The Waterbury Castings Co., Waterbury, Conn., which is erecting a new foundry at that place, has closed with the General Pneumatic Tool Co., Montour Falls, N. Y., for the necessary equipment of Shepard cranes. These will be of 50-foot span to cover the main bay and will be of 5-ton and 10-ton capacity.

Alvin M. Smith, of the Smith-Courtney Co., Richmond, Va., who has been serving as treasurer of the Southern Supply & Machinery Dealers' Association, has been appointed secretary as well. This position has been vacant since the last convention. President C. H. Briggs, of this association, will call the executive committee together in the near future to select the location of the next annual meeting.

The Robins Conveying Belt Co., now located at 13 Park Row, New York City, expects in the near future to remove its general offices to Passaic, N. J., where its works are situated. A New York sales office will be retained at some location not yet decided.

The Lehigh Valley railroad has asked the city council of Easton, Pa., to vacate a portion of certain streets adjacent to its shops at South Easton to provide additional track facilities. Reports are that the railroad will purchase several blocks bordering the shops on the east and will use the ground for extensions.

The contract for building the group of factory buildings for the Taylor Iron & Steel Co., High Bridge, N. J., has been let to Doyle & Co., Philadelphia. These are to be one story structures of brick and concrete, 100 x 115 feet, 112 x 162 feet and 50 x 365 feet, with several smaller buildings.

# THE IRONDALE FURNACE NEAR SEATTLE, WASH.

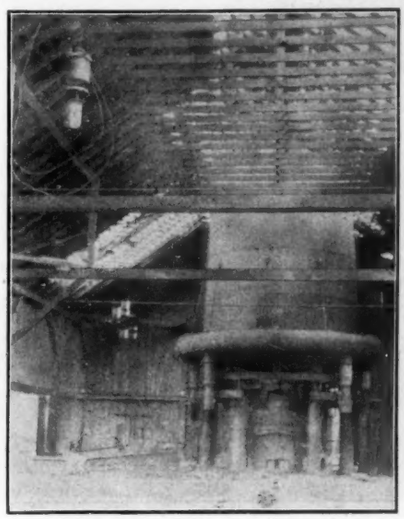
BY H. COLE ESTEP

Andrew Carnegie, in a speech delivered at Edinburgh, Scotland, Oct. 22, 1902, said: "The seat of manufacture is now and will continue to be, more and more, simply a question of where the requisite raw materials are found under suitable conditions. Capital and skilled labor have lost the power they once had to attract raw materials, these now attract labor and capital." In obedience to this law there have been several attempts to establish a blast furnace on the north Pacific coast of the United States; the region offers every opportunity, including an abundance of raw material, a near and ready market, a tariff wall on one side and high freight charges on the other, for the establishment of a prosperous iron smelting business. But in spite of these advantages other stronger influences, among which in the early days the meagerness of population and capital were large factors, have prevented the establishment of any successful furnaces on this coast until today.

The efforts to operate iron smelting plants on the Pacific date back 27 years; most of these attempts have been made at what is known as the Irondale plant near Port Townsend which now has a venerable and checkered history pertinently illustrative of the early struggles of the Pacific coast iron trade.

**Million Tons Used.**

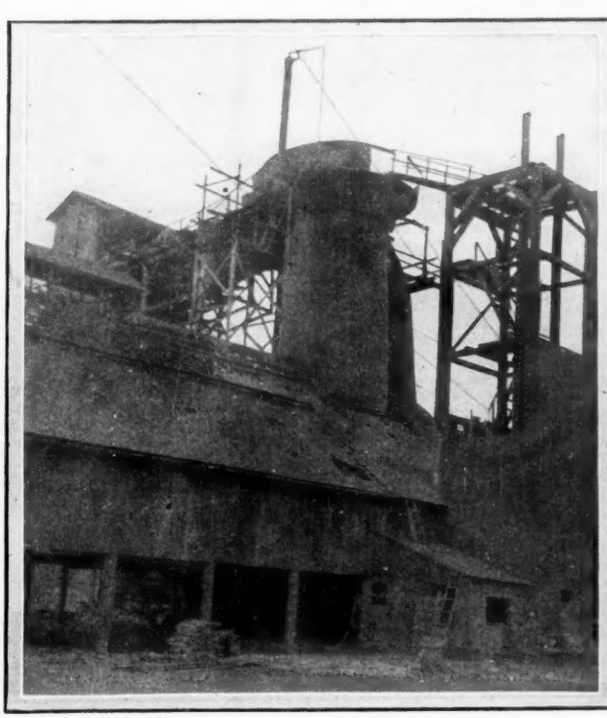
From the best statistics obtainable at present, we find that there are over 1,000,000 tons of iron, steel and finished products used annually on the Pacific coast; of this amount, about 80,000 tons is crude pig iron. Practically every pound of this is either hauled 3,000 miles across three ranges of mountains from the east or brought half way around the world from Scotland. Prominent iron men who have visited the north coast region have commented on this feature and many of them have jumped at the conclusion that there is no iron ore west of the Rockies. James J. Hill, with his weather eye looking out for the profits accruing from the long haul from Pittsburg to Seattle, has also carefully fostered the prevailing eastern opinion that there is no iron on the west coast. But this is not so. There is an abundance of good magnetite and bog ore in Washington, Oregon, Idaho and British Columbia. This will be brought out more in detail subsequently.



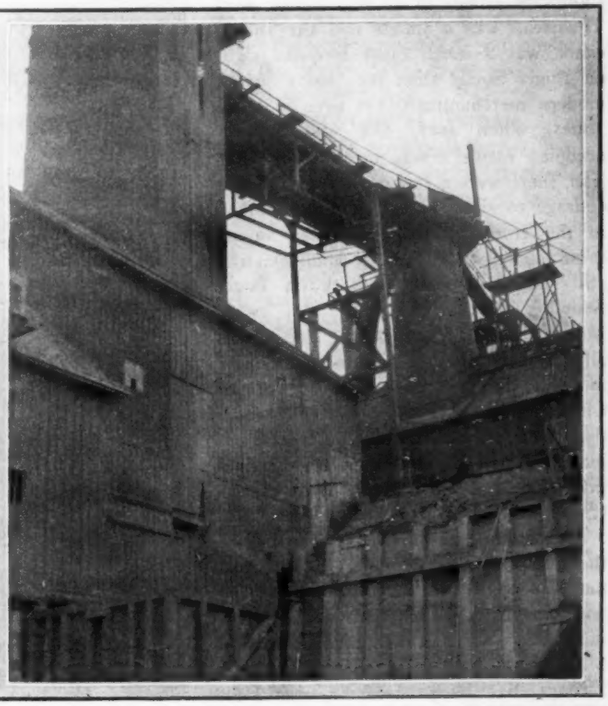
INTERIOR OF FURNACE SHED AT IRONDALE.

One of the early attempts to smelt this ore was made at Kirkland on the east shore of Lake Washington, near Seattle. Owing, however, to the prevailing opinion of eastern capitalists, then much stronger than it is now, that there is no ore in the west, the Kirkland project was unable to interests sufficient money to make it a success. The earlier and more extensive attempts were made at Irondale.

Irondale is situated on deep water on

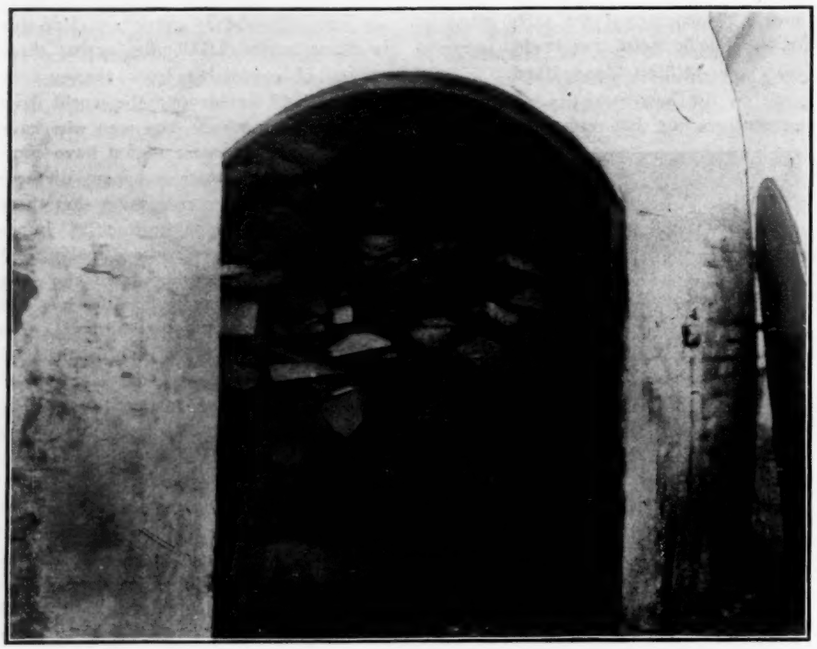


VIEW OF WEST SIDE OF FURNACE AT IRONDALE.



VIEW OF EAST SIDE OF FURNACE AT IRONDALE.

the west shore of Townsend Bay about five miles south of Port Townsend, Washington. With reference to the mines, the location is central; it is also but 40 miles from Seattle and 60 miles from the open sea.



Wood Piled in Charcoal Kiln Previous to Igniting, Irondale.

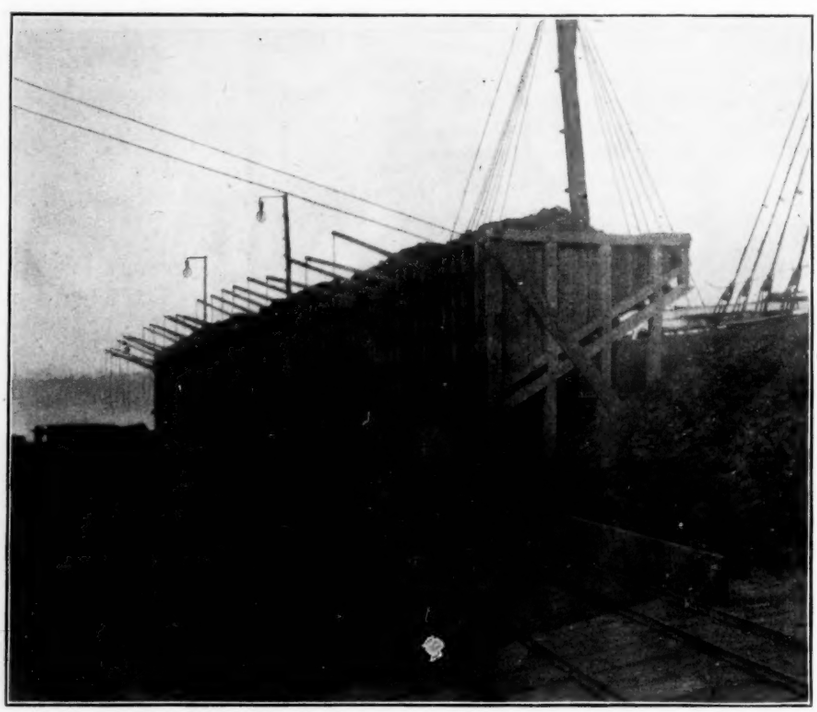
**The First Blast Furnace.**

The first blast furnace was built here in 1870. At that time there were no railroads in the region, Seattle was an insignificant village of no importance, Port Townsend was a jungle and the Indian canoe was a much more frequent sight on Puget Sound than the spars of a modern merchantman. Yet even in those times, when furs, fish and lumber occupied men's minds much more than iron, there were a few men with sufficient courage to sink several thousand dollars in the Irondale smelter. Chief among these pioneers was Samuel Hadlock, who still resides at Port Hadlock on Puget Sound. Associated with him were Messrs. Moore, Hastings and Pettygrove, all residents of Port Townsend. These men had found a deposit of bog ore at Chimacum near Port Townsend which they thought inexhaustible. It was primarily to develop this that the original little stone stack of five tons daily capacity was erected at Irondale in 1870.

For smelting the ore coke was out of the question in those days; fir charcoal made in open pits in the old fashioned way was used. The small furnace was not a success; so it was torn down and a larger one built in its place. The new furnace, like its predecessor, was built of stone and had a daily capacity of 15 tons. Using the new stack, a great many experiments were made with different methods of treating the ore, but the operators were inexperienced and found that while they had little difficulty in producing a very high grade of iron, they could not operate the plant profitably and so in 1875 closed down and dismantled the works.

In 1880 the project was revived by a number of San Fransisco capitalists who had purchased 2,400 acres of high grade magnetite ore on Texeda Island, British Columbia. The leading spirits of this enterprise were Irving M. Scott and George H. Prescott, then at the head of the Union Iron Works of San Fransisco. These men incorporated the property under the name of The Puget Sound Iron Co., taking into the firm the leading business men of that day; among these were Charles W. Howard, president of the Spring Valley Water Works, George C. Perkins and Edwin Goodall of Goodall, Perkins & Co. the predecessors of the Pacific Coast Steamship Co., Allen A. Curtiss, Henry M. Dodge, Daniel F. Hayes and John F. Merill of Holbrook, Merill & Stetson.

In the early eighties, The Puget Sound Iron Co. purchased the Irondale property, removed the old stone stack and replaced it with a small iron one. They operated it for a while, then dismantled the original iron stack and put in a new one 50 feet high with a rated capacity of 40 tons per day, which amount they were never able to turn out. They soon exhausted the bog ore at Chimacum, but found all they could use on their Texeda Island property, from which they produced a very fine grade of iron. The primary object of the plant was to provide iron for the Union Iron Works, then executing a number of government contracts requiring the finest quality of charcoal pig. Thus a great many castings used on the historic battleship "Ore-



Ore Bins on the Dock at Irondale. Capacity 800 Tons.

This bunker is supplemented by the inside bunkers next to the furnace, which have a capacity of 1,500 tons.

gon", the cruiser Olympia and the monitor Monadnock are made from Irondale pig. No difficulty has ever been experienced at Irondale from lack of plenty of ore within reasonable distances or in making the very best No. 1 gray charcoal pig. The trouble has been to interest sufficient capital to build a plant of paying proportions and to procure competent men to manage the property.

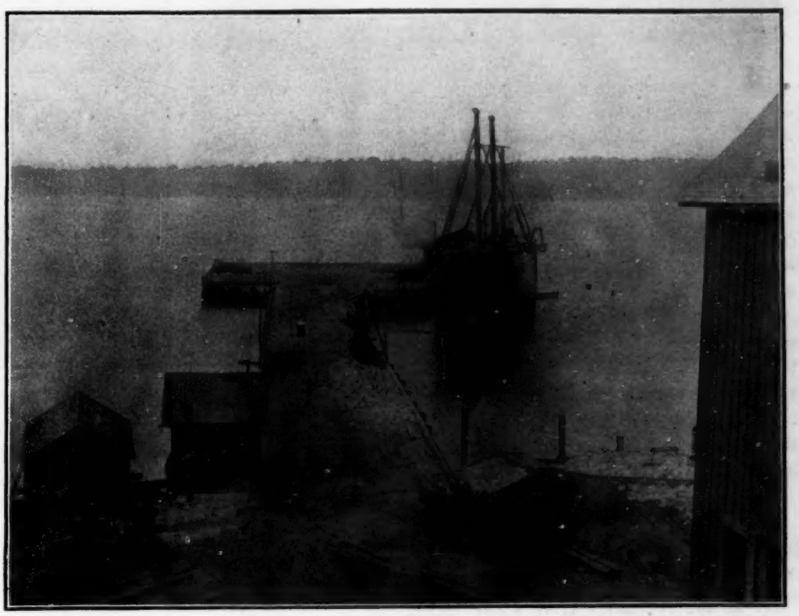
**An Important Obstacle.**

This latter difficulty was one of the chief stumbling blocks of The Puget Sound Iron Works; in those days it was very hard to induce a competent eastern furnaceman to come so far west. Finally, however, in 1885 the company engaged Albert Frosier of Birmingham, Ala., who administered the plant in a satisfactory manner. He got it into such shape that the old furnace produced 30 to 35 tons of iron daily.

The owners, however, were wealthy men with large interests in California requiring their personal attention. Southern iron became cheap in San Francisco and so the company, really subsidiary to the Union Iron Works, did not care whether it operated the Irondale furnace or not. One day at a meeting of the board of directors, Mr. Prescott, who was chairman, made the proposition that some member of the board go north and take charge of the plant personally. No one could be found who would accept the proposition; so it was voted to close the works. Operations were suspended in 1889. The company had spent $250,000 on the plant and during the dull business period of the middle eighties had accumulated 6,000 tons of iron. This was sold for $30 a ton by W. H. Lee, who had been placed in charge when the plant closed.

**Mr. Swaney's Death.**

For eleven years, the plant remained idle in charge of the caretaker. In 1901, the Pacific Steel Co., which had been organized by Homer H. Swaney, a lawyer from McKeesport, Pa., bought the Irondale furnace for $40,000. The old Puget Sound Iron Co. valued the plant at $80,000, but accepted $40,000 in consideration of an agreement by the new owners to take large quantities of Texeda ore. Mr. Swaney went west and served as vice president and general manager. Many improvements were made, the docks and ore handling machinery were improved, the furnace was relined, the charcoal plan enlarged and modernized and 20 houses were built for the employees. In the midst of his plans for enlarging the furnace to an economical capacity, Mr. Swaney was drowned on the ill fated steamer Clallam, which sank in a storm between Port Townsend and Victoria, Jan. 9, 1903. Mr. Swaney's death put an end to the plans for obtaining capital for a new furnace and stove to replace the old one which was too small to be efficient. About the same time, trouble developed with the ore. Most of it was Texeda Island magnetite. That portion lying near the top had lost practically all of its sulphur by weathering and was adaptable for direct use in the furnace without previous roasting. When the surface ore was removed, it was found that the deeper the ore lay the more sulphur it contained. The per cent of this objectionable element soon rose so high as to make a roasting plant an absolute necessity. Face to face with this condition, with the moving spirit of the enterprise dead and no money available to erect the roasting plant and make the other necessary improvements, the plant closed down for the third time.



ORE DOCK AT IRONDALE, BARK MELANOPE UNLOADING ORE FROM QUATSINO SOUND.

**Period of Receivership.**

On Jan. 11, 1903, M. J. Carrigan was appointed receiver. Mr. Carrigan held the property together and kept it in as near running order as possible for three years. Efforts to reorganize the Pacific Steel Co. failed and in September 1906, the court ordered a sale. The plant was bought by James A. Moore of Seattle for $40,000.

Mr. Moore has the unique and enviable reputation of having brought more capital to Seattle and Puget Sound than any other individual and of never having experienced a failure with any project he has promoted. He wisely began the development of the Irondale property by exploring much more thoroughly the ore deposits of the northwest. The results were gratifying; he found large deposits of high grade bog ore containing very small percentages of sulphur, phosphorus and silicon. This meant that the Texeda Island magnetite, high in sulphur, could be mixed with a heavy proportion of the bog ore and smelted directly, producing iron low in sulphur. The roasting plant became unnecessary and thus one of the chief stumbling blocks encountered during the latter days of the Pacific Steel Co. was removed at the outset.

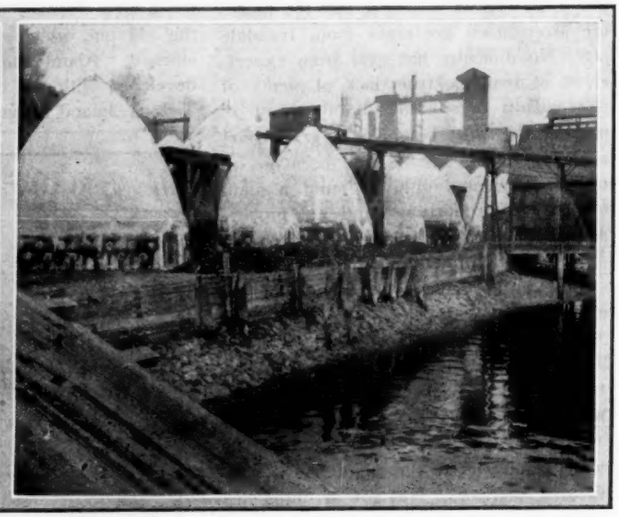
Mr. Moore incorporated under the name of Irondale Furnace Co. and during last winter and the spring of this year completely remodeled and modernized the works. The new plant commenced operation Aug. 9, 1907.

**Description of Furnace.**

The Irondale furnace is small, but a brief description of it will be interesting. The company owns 320 acres of land on tide water at Irondale and employs about 100 men at the works. The ore dock is 550 feet long, extending well out into deep water. At the end of the dock is an ore bunker 150 feet by 15 feet with a capacity of 800 tons. The barges and scows unload directly into these bins; it is the ultimate intention to use electric unloaders similar to those employed on the Great Lakes. The ore is carried from the wharf bunker to the inside bunker by two methods: A system of two-foot gage tramways using Truax patent ore cars and a continuous bucket conveyor.

The inside bunkers are housed in a building 40 by 60 feet in size and contain space for 1,500 tons of ore. The ore is dumped into bunkers from vertical bucket conveyors. Spouts at the bottom of the bins deliver the ore into buggies which are wheeled onto two steam driven

ALONG THE TOPS OF THE CHARCOAL KILNS, IRONDALE.



CHARCOAL KILNS AT IRONDALE, BLAST FURNACE IN BACKGROUND.

elevators and raised to the charging floor level.

The furnace, located on the hill about 100 feet from the shore, has a capacity of 60 tons per day. It is 56 feet high, 11 feet in diameter at the boshes and 6 feet at the crucible. It is water jacketed and provided with three rows of bronze coolers at the boshes. The blast is furnished by two vertical Wymer blowing engines, the larger one capable of furnishing blasts for a 100-ton furnace. The small blower is kept in reserve.

The blast is heated in two pipe stoves of modern construction; one has 60 pipes, the other 30. The pigs are cast on a floor 100 by 60 feet in size.

The power plant is situated directly back of the furnace and includes, besides the blowing engines, three 72-inch by 20-foot Atlas return tubular boilers burning furnace gas, one high speed Ball engine belted to two venerable Edison size 12 direct current 110-volt generators. The auxiliary machinery is all motor driven. Just south of the ore dock are two iron warehouses, each 50 by 150 feet.

### The Charcoal Kilns.

The most interesting feature of the plant is the charcoal kilns. At present coke is not economical for Washington blast furnaces; charcoal can be made for practically the same price per unit of heating value and at the same time produces a much better grade of iron. The charcoal is made from slabs bought from the nearby saw mills. The slabs are brought in on scows from which they are unloaded and dumped onto slab trucks by an ingenious chain conveyor and thus require but one handling. The charcoal kilns are ranged along the shore south of the furnace. There are 20 of them, each 30 feet in diameter at the base and 30 feet high, bee hive shape. The capacity of each kiln is 80 cords; the wood is distilled from 7 to 12 days. The plant turns out 30 kilns of charcoal per month. The company is now engaged in erecting 20 more kilns on the hill back of the present ones. Japanese labor is used in the charcoal plant.

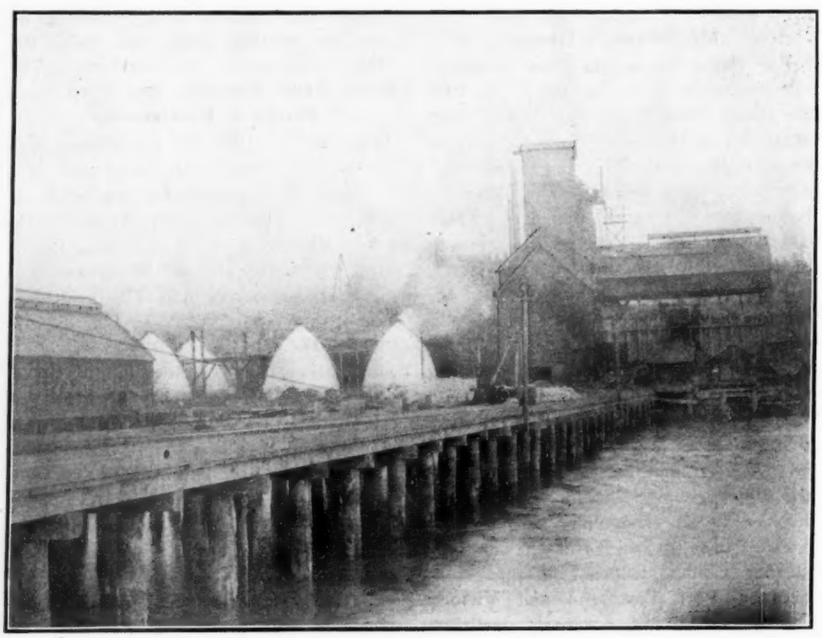
On the hill back of the furnace, presenting a beautiful view of the bay, the company has built 32 neat cottages for the use if its employees. The company owns its own water works at Irondale and is supplied in addition with a main from the Port Townsend system. In spite of the isolated location, the fire protection is good. William Price is manager of the Irondale furnace.

### Iron Ore Supply.

Upon how much ore can Irondale depend? Mr. Price, who is an experienced furnaceman and mineralogist and who has spent years examining the ore properties of the northwest, conservatively estimates that there are 300,000,000 tons of iron ore available in Oregon, Idaho, British Columbia and Washington. The present supply of the furnace comes from three sources.

A small amount of magnetite containing 60 per cent iron and considerable sulphur is brought from Texeda Island in British Columbia. By far the larger percentage comes from two mines situated respectively at Quatsino Sound at the extreme northern end of Vancouver island and at Crafton, five miles from the town of Arlington in Snohomish county, Washington.

(Continued on page 476.)



GENERAL VIEW OF IRONDALE FURNACE.

# PROGRESS ON THE GOGEBIC RANGE

BY THE MINING EDITOR OF THE IRON TRADE REVIEW

Confidence that ore will be found at most of the mines on the Gogebic range at depths of 2,000 feet has become more firmly established in the past ten months. There are now in operation five shafts,—Ashland, Norrie, East Norrie, Pabst and Aurora,—which have either steel head frames or steel lined shafts or both. There are six all steel shafts now sinking,—Montreal, Aurora, Newport, Geneva, Eureka and Asteroids—and at least one more in contemplation to be started within the next two months at the Tilden mine. These preparations for deep and long continued mining have been lent encouragement by the development at both the Montreal and Newport mines of substantial ore bodies at deeper levels after sinking through a considerable depth of barren ground.

The Newport is making many improvements for the handling of its large ore body and on either side of the Newport, through its Pabst shaft to the west and the Davis, Geneva and Puritan shafts on the east the Steel Corporation is expecting to reach extensions of the same ore body. The ore occurs at a depth of about 2,000 feet in the Newport, and, as the formation pitches toward the east, it is expected that the ore will be reached in the Pabst at a less depth and to the eastward probably below 2,000 feet. The Geneva shaft is already down 1,800 feet. While the situations at both ends of the range are not identical in the matter of formation and what has been found at the Montreal on the west and at the Newport on the east cannot be expected to occur inevitably, uniformly over the range, the fact is established at least that the ores do occur at greater depth than many of the mines have gone and consequently every one of the mines will continue to sink for some time to come.

**The Iron Belt Mine.**

The Iron Belt mine of the Cleveland Cliffs Iron Co. will ship about 12,000 tons this year as compared with a little more than 3,000 in 1906. Only a few thousand tons remain in the stock pile. The No. 1 shaft has been put down 1,100 feet at an angle of 75 degrees and preparations are in readiness to begin drifting at that depth. The power plant consists of a Thompson-Greer Co. hoist, geared, with 15 x 22 inch cylinders and 8-foot drum, a Rand Drill Co. compressor and three Burt boilers.

The No. 2 and No. 3 Atlantic shafts of the Steel Corporation are also at a depth of 1,100 feet though practically no ore has ever been hoisted at No. 3. A few cars have been loaded lately, but this was simply ore taken out in the exploratory work. A complete new equipment has been put in at the No. 3 shaft. The shaft itself has two vertical compartments, having been sunk in the hanging and the head frame is designed much more after the pattern of the steel shaft-houses than the ordinary wooden structures, is very high and has the appearance of being built with more and lighter timbers. It has been completed a comparatively short time. The newly erected hoist house and boiler house are of the standard design of The Oliver Iron Mining Co. for the most part and the installation of machinery includes a Wellman-Seaver-Morgan double drum, geared hoist, an Allis-Chalmers two-stage air compressor and a battery of four boilers.

At the No. 2 shaft, which, with the now abandoned No. 1 shaft, has furnished about 1,300,000 tons of ore and where all the ore has been hoisted in the last seven or eight years, the old equipment, some of which came from the Pennsylvania coal mines, is still doing duty. More ore is being hoisted this year than last and a speed of 1,000 feet a minute is still being obtained from an old Dickson engine manufactured by the Dickson Engine Mfg. Co., of Wilkesbarre, Pa. The cage is operated by an engine built by D. Clint Prescott at Duluth a good many years ago.

**Montreal Development.**

At the Montreal mine, the outlook is for a large development in the next five years and a proportionately increased output. Sinking has been continued in the present active shaft to the 20th level at a depth of about 1,700 feet and a drift opened up for about 500 feet. The ore on this level has improved in both quantity and quality as compared with the 18th and 19th levels in a gratifying degree and the least that may be reasonably anticipated is that another body of ore such as was mined in the upper levels has been opened into. As is known to those familiar with the Montreal mine, there is one large dyke running through the property and pitching toward the east, as is the prevailing tendency on the range. Above this dyke was the ore body on which the mine depended for a number of years, the extent of the ore decreasing from the 14th to the 17th level. The shaft was put through the dyke and the present active levels were opened up under it. Whether the ore that is now being opened up rests on another such formation has not been determined as yet, and, while that would be the logical supposition, at the same time the dyke intrusions are not so frequent west of the east branch of the Montreal river as on the other side. In any case a very good depth of ore is to be expected and it is already planned to sink to the 22nd level.

**Rapid Sinking.**

Work on the new No. 4 steel lined shaft is progressing very nicely now. It is 10 x 17 feet and is being put down in the footwall slates. During the past month, sinking has progressed at the unusually rapid rate of 70 feet per month with one large hoisting bucket, three drills running three shifts a day and six men to the shift. In the beginning some trouble was experienced with a bed of quicksand about 15 feet thick overlying the ledge and, though ground was broken for the shaft March 7, it is down only 170 feet at present because two months were lost in getting the shaft through quicksand. The quicksand was encountered at a depth of 25 feet and the ledge at a depth of 40 feet on the footside of the shaft. The quicksand itself would not have been so bad, but the ledge was found to break obliquely across the shaft and was not found in the hanging before reaching a depth of 60 feet. This made it impossible to get bearers into the walls to hold the shaft sooner than at a depth of 67 feet and added to the difficulty in holding the sand. The steel at the lower end of the shaft was thrown out of line and badly buckled, and the ground around the collar of the shaft caved noticeably, but the shaft was hung from an unusually long heavy timber and the problem confined itself to sealing up the shaft walls and getting the first bearers in.

This shaft is 2,600 feet in an easterly direction from No. 3 shaft and the hoisting is now being done with that

half mile stretch of cable. As soon as sufficient water can be obtained, a temporary hoist will be installed and eventually a complete new power plant will be erected, including the electrical installation for the entire mine, as the new shaft will become in the next few years the biggest end of the property. With both shafts hoisting, the present output, which last year was about 140,000 tons and this year will be in the neighborhood of 160,000 tons, will be more than doubled.

The 19th level, which will connect the two shafts, is now about 2,000 feet long and when it is brought all the way over, work will be started raising to meet the shaft. The shaft is being lagged with pine on the hanging and hemlock on the footwall.

**Surface Improvements.**

A number of improvements have been made on the surface also. A new location has been platted about 700 feet from the new shaft, the ground cleared and 20 houses built. These houses cost to build about $750 and rent for $6 a month. A site on the location has been reserved for the new office building. Foundation work has been started for a new machine shop 32 x 60 feet, which is to have a complete equipment of necessary tools. An unusually well built coal trestle is just being completed. Southern pine, finished smooth on all sides and treated with preservative, has been used exclusively in the construction. It is anticipated that the life of the dock will be sufficiently longer than that of the ordinary rough pine and hemlock trestles to amply justify the greater cost. The structure is over 500 feet long, contains 107,000 feet of lumber and will take care of about 8,000 tons of coal. The supporting timbers are 12 x 12 inches and the stringers 8 x 16 inches. The dock has a grade of 3½ per cent and the legs a 3-foot batter. The overhang on either side of the track is greater than usual and a foot platform in keeping with the rest of the dock extends the entire length. At the high end of the trestle, the legs are mounted on concrete piers.

Of the neighboring Jones & Laughlin properties, the Hennepin is still idle, but the condition of the Pence is being considerably improved. The shaft is being straightened, the hoisting of ore having been discontinued and the skip replaced by a trolley and bucket. For a year the work in the mine has been largely exploratory, tracing out the formation, which fact in conjunction with the improvements being made points to a much bigger year next season. A brick boiler and hoist house 40 x 70 feet is in the process of erection and the boilers, two built by the Keewanee Boiler Works, have already been set up.

**Old Equipment.**

Some of the mines on the range, as, for example, the Cary group, are still operating with the same shafts and hoisting equipment with which the first exploratory work was carried on. The depths at which the properties are now being operated, 1,000 feet and more, necessitate heavier machinery and between Cary shaft Nos. 4 and 5, new plants are being erected. Four Erie City boilers are being put in, a Wellman-Seaver-Morgan, 20 x 42 inch, geared hoist, with double drums, 8-foot diameters, and a 25 drill Ingersoll-Rand compressor. The new hoist will operate shafts 4 and 5 and will be the beginning of a central power plant scheme for the six shafts. These shafts are all in the ore formation and to have them cave in is not an infrequent occurrence. Two weeks ago, however, the Windsor shaft caved at the second level and hoisting was delayed for a couple of weeks.

**Deepening the Harmony.**

The Harmony mine is still being deepened and is down 1,700 feet. The output will be bigger this year than last. The Ottawa mine is handicapped as are most of the mines on the range by scarcity of labor. Development is being continued both from No. 1 and No. 3 shafts: at No. 1 east and west on the 7th level and at No. 3 west on the 6th level and east and west on the 7th. The settling system tried out at the Ottawa and described some time ago, has been fairly successful, but it is now the intention to put in a pumping plant along side of the west branch of the Montreal river close by and obtain water there.

Few changes have occurred in the last six months at the mines of the Steel Corporation on this range outside of the natural development of the properties. The new steel shaft at the Pabst just being completed last fall has been hoisting ore all winter and the "F" Aurora shaft for which ground was broken last November is now at a depth of 500 feet. Two hoisting buckets are being used and sinking is going on at the rate of from 65 to 72 feet a month. This is also a steel lined shaft. The Davis, Geneva and Puritan are not shipping ore though some has been stocked from the development work. The Tilden at Bessemer is down 1,400 feet in No. 6 shaft and 1,000 feet in No. 10. A small pocket of ore was run into recently in No. 10 shaft, but the principal exploratory work is being done from No. 6, which during the winter was sunk through the dyke in which it bottomed into the footwall. A cross cut is being driven. It is confidently expected that ore known to exist to the westward will be found and a steel shaft is to be put down here in the near future.

**Newport's New Equipment.**

It will be well into next summer before the new equipment and shaft at the Newport will be ready for service. At present the shaft is down 1,000 feet and the head frame almost completed. The new hoist is being installed, but a great amount of work remains still to be accomplished. The new Colby shaft is still sinking. The shipments from the Colby, Ironton and Yale mines give promise of being a little larger than last year.

The Eureka mine is being crowded as hard as possible in the attempt to ship the schedule of 80,000 tons for this season. The months of March, April and May were lost because of a fire which burned out the shaft from the 6th level up to the collar of the shaft, about 500 feet. The shaft had to be retimbered and the piping replaced and hoisting was not resumed till June 1, placing a severe handicap on the season output. The shaft is now 900 feet deep and shipping at the rate of 350 to 400 tons a day. A new steel lined shaft is being put down and has reached a depth of 200 feet. It is sinking at the rate of about 45 feet a month. The equipment of the mine has been continually improved during the last year. A new 20 x 42 inch Sullivan Machinery Co. geared hoist with single 8-foot drum has been installed in the new power house for hoisting in the old shaft and the old engine is operating the bucket in the new shaft. New houses have been erected and the mine buildings have been enlarged. A new triple expansion Prescott pump is on the ground waiting for a station to be cut underground. The mine seems to be in much better shape than at the close of last season.

**The Asteroids Shaft.**

The Asteroids shaft, which was started last November between the Eureka and the Mikado, experienced the same difficulty that occurred in the Montreal shaft and, if anything, in greater degree. It is down 200 feet and progressing very well at present.

This will be a steel shaft also and the buildings for the permanent boiler plant are now under construction. Two Babcock & Wilcox boilers will be used. The hoist will be furnished by the National Iron Co., of Duluth.

The Castile, where the same company has been exploring for three years, has reached a depth of 1,100 feet and will ship a small quantity of ore this year. A 2,000-gallon Prescott pump is about to be installed. The old Comet mine, or Meteor as it is sometimes called, is to be reopened. The shaft will have to be retimbered and all the buildings rebuilt. The mine has been idle only since 1904, but has had a checkered career beginning in 1890 and once before was idle for four or five years. The Eureka, Asteroids, Castile and Comet are all operated by the Castile Mining Co., an Oglebay, Norton Co. subsidiary.

The stock piles on the Gogebic range have been shipped earlier than usual this year in part because of the greater number of boats loaded at Ashland during the strike at the head of the lakes. This is most true of the Steel Corporation. Practically all of its stocked ore has been shipped. Some remains at the Tilden, Atlantic and Pabst and at all the mines where the ore is not already gone, steam shovels are working on the piles. Timber is none too plentiful for the mine work and that scarcity itself is almost a sufficient reason for building the deep shafts of steel.

### AMONG NEW ENGLAND INDUSTRIES.

Worcester, Mass., Sept. 9.—The Crescent Fire Arms Co., Norwich, Conn., has leased from the Norwich Nickel & Brass Co., a factory for use as a case-hardening and brazing department, to take place of the building that was destroyed a few days ago. The factory will be equipped at once.

The Atlantic Insulated Wire & Cable Co. has completed its new plant at Stamford, Conn. A good deal of machinery has already been put in and in a few weeks all departments will be in full running order. The new plant is about three times as large as the old plant burned last November. The main building is two stories high, 80 x 351 feet. The power house is 44 x 100 feet. The mixing department has a daily capacity of 10,000 pounds of rubber compound, and the insulating department is capable of handling 600,000 feet of wire each day.

The two branches of the American Steel & Wire Co., in Worcester, the North Works and the South Works, employing about 5,500 hands, report no let-up in business. The tightness of the money market does not seem to have affected their business in any way, and the future looks bright.

## HOW TO RESTORE CONFIDENCE

Editor THE IRON TRADE REVIEW:

The following remarks are suggested by the leading editorial in your issue of August 22.

About five years ago a new condition appeared in railroad affairs which had never before been known, namely, a congestion of railroad tracks by loaded freight cars. At the same time there was a shortage of cars and of locomotives. The great prosperity of the country was shown in increased crops and increased output of mines and factories. The increase of freight to be moved caught the railroads with insufficient facilities to move it. This all happened at a time when there was plenty of money in the world available for investment. New York City could borrow all the money it wanted at three per cent on long time bonds. The insurance companies loaned money on New York real estate at 3½ per cent. The best managed trunk lines of railroad could get all they wanted at four per cent. Within the next few years the greatest building enterprises the world had ever seen were started. The government began to build the $100,000,000 Panama canal; New York state, the $100,000,000 barge canal; New York city a $100,000,000 water supply, the Pennsylvania and New York Central railroads, each, a $100,000,000 terminal, and the total cost of new bridges, buildings, tunnels, etc. contracted for in New York city and vicinity alone, for completion before 1910, was recently estimated at over a billion of dollars.

These vast expenditures for permanent structures begat others. They caused such a prospective demand for iron that the Steel Corporation began building a $75,000,000 steel plant at Gary, Ind. It caused such a demand that for over two years, notwithstanding the rapid building of blast furnaces, supply could not catch up to demand, and large orders had to be placed for delivery a year ahead to secure delivery at all. The rate of increase of production of pig iron during the last five years was greater than was ever before known for an equal period of time, and prices kept advancing. The money paid for pig iron in 1906 was more than $200,000,000 greater than would have been paid if the prices had been those of ten years before.

This activity of building and of investment was not due to any fever of speculation. No one was to blame for it; it was the natural result of the congestion of the railroads by the enormous quantity of goods produced by a prosperous country.

In addition to the demand for loanable funds caused by the activity in building necessary structures, there has been a vast destruction of wealth and a consequent demand for funds to replace it in the war between Russia and Japan, causing those countries to borrow great sums of money on bonds, and in the San Francisco earthquake, which depleted the treasuries of the insurance companies and called for other money to help rebuild the city.

The enormous demand for loanable money due to all these causes was all right if there had been an unlimited supply to meet it, but it was not unlimited. The available supply has been exhausted. The railroad companies and the largest industrial corporations cannot sell bonds at any reasonable price and are forced to borrow on six per cent notes. Money for investment in permanent structures is scarce, not due to any want of confidence in investors, but to an actual shortage of supply. There is no shortage of the circulating medium, gold, silver, and bank notes, but there is a shortage of loanable funds, bankers' credits. A few years ago a man holding New York Central stock, valued at 140, might borrow $120 a share on it, at five per cent. Now, on the same stock, valued at 102, he can only borrow, say $80, at six per cent. The case is worse with many other stocks. They have lost from 30 to 50 per cent of their present available value as collateral for loans, although they are just as good as ever they were for permanent investment and for paying dividends.

There is only one possible result of this condition. The activity of building on borrowed capital of new permanent structures for future use must for a time be postponed. The country must for a while settle down from a condition of abnormal and extraordinary prosperity to one of normal and moderate prosperity. The farmers will continue to produce crops, the factories that are in good financial condition will keep on working to make stock for next year's probable demand. The mines will produce ore and the furnaces will make pig iron to supply orders on their books which will run into next year, but projects for the future buildings of great structures, bridges, railroads, etc., will be entered upon with

great caution. The wealth of the country will increase as before by taking it out of the ground.

But prices of many products will decline. Consulting the table of prices for a series of years it will be found that in dull periods, pig iron at Pittsburg is in the neighborhood of $10 a ton and copper ten cents a pound; and in fairly good times, pig is $15 and copper fifteen cents. Pig iron at $25 and copper at 25 cents are abnormal, due only to the enormous demand and unsatisfactory supply. The men who must have pig and copper to fill existing contracts may be willing to pay $25 a ton for one and 25 cents a pound for the other, but it is reasonable to suppose that no one wishing to embark on a new enterprise at this time will contract for a future supply of these metals on any such basis.

There is a lack of confidence, but it is not a sentimental one as to political or social questions. It is a real and economic one, as to the date when pig iron will touch bottom and when the investing public will have accumulated enough loanable funds to enable it again to invest in new enterprises. These two things are needed: loanable funds derived from the crops and from the profits of industry, and confidence that prices are low as they are likely to be for a year or two, encouraging investment of these loanable funds.

There is no reason for any other lack of confidence than as to the date when funds will be available. Every other prospect is a bright one. Crops are promising, the great drafts of money for the Panama canal and the New York state canal and the railroad terminals will come to an end. The railroads will obey the laws as to rebates, and they will be protected by the courts from ruin by state legislatures. The tariff will not be touched until after the next presidential election. The production of gold and silver will continue to increase and the iron and other metal trades will still do a profitable business. After present contracts are filled, the rate of production of pig iron may fall off and some furnaces may go out of blast, but the same causes which led to an average rate of increase of production of pig iron of over 100 per cent per decade for the last forty years will still prevail and any drop in production this year will be made up in a year or two following.

Patrick Henry said, "I know of no way of judging the future except by the past." THE IRON TRADE REVIEW of Jan. 10, 1907, contains a chart drawn by the writer showing production and prices of pig iron for forty years, from 1866 to 1906. Taking rough figures from the chart we find the following: The boom of 1879 caused the price of foundry pig at Philadelphia to advance from the average of $17.50 for the year 1878 to $28.50, the average for 1880. The price then fell off steadily for five years until $18 was reached as the average figure for 1885. During the first three years of this period, the production of pig increased at a normal rate but during the last two, it decreased, the result of the little panic caused by the Grant & Ward failure in 1884. From 1885 to 1892 there was an uninterrupted period of prosperity, the production of pig iron advancing from 4,044,000 tons in 1884 and 5,683,000 tons in 1885 to 9,557,000 tons in 1892. During the seven years, 1885 to 1892, inclusive, the average yearly price did not vary over $1.50 a ton, the range being from $17.50 to $19, except one year, 1887, when it touched $21. These were years of great prosperity, just such years as we have been having recently, in which the demand for pig iron kept in advance of the supply. In 1892 the capacity of the works had been increased to such an extent that supply caught up with the demand and the average price for the year fell to $16, the lowest average price known at that time in the history of the trade. But lower depths were to follow, and the average yearly price of foundry pig at Philadelphia dropped steadily for six years until it reached $11.75 in 1898, while that of Bessemer pig at Pittsburg reached $10.25. This was the result of the big panic in 1893. The next period of seven years was one of abounding prosperity, with the exception of the drop in 1904, caused by the "little panic" of "undigested securities." The production of pig increased from 8,623,000 tons in 1896, and 9,652,000 in 1897, to 22,992,000 in 1905. The average yearly price of Bessemer pig at Pittsburg during these years, rough figures taken from the chart, was as follows:

| | |
|---|---|
| 1899 | $19.00 |
| 1900 | 19.50 |
| 1901 | 15.75 |
| 1902 | 20.50 |
| 1903 | 19.25 |
| 1904 | 13.75 |
| 1905 | 16.25 |

Average for seven years...$17.71

Compare these figures with those of the previous long period of prosperity, 1886 to 1892, inclusive:

| | |
|---|---|
| 1896 | $18.75 |
| 1887 | 21.00 |
| 1888 | 18.75 |
| 1889 | 17.00 |
| 1890 | 18.25 |
| 1891 | 17.50 |
| 1892 | 15.75 |
| Average | $18.25 |

These figures are for foundry pig at Philadelphia, the figures for Bessemer at Pittsburg not being at hand, but they will run about $1 lower. It thus appears that in two long periods of prosperity when the production of pig iron was increasing at a very rapid rate, the average yearly price of pig iron was in the neighborhood of $18 and at no time in either of these two periods of seven years each did the yearly average run above $21.

During 1906 and 1907, however, we have had the extraordinary condition of pig iron remaining above $22 a ton for more than two years, which has not happened before for 24 years, or since 1883. The two year period which has just elapsed is comparable only with the short boom period of 1879-80, and what happened then must happen now. The price of pig iron must go down until it reaches what may be called a normal price of, say, $17 a ton. After the boom of 1880, it took five years for the price of pig to drop from $28.50 a ton to $18. It has not so far to drop now and the time required will probably be much shorter. It appears that the thing most needed now to establish confidence is to have pig iron go down to $17 a ton as soon as possible, stay at that figure for a month or two and then advance to $18. The next thing needed is a stopping of investment in new building enterprises until there is a sufficient accumulation of profits of growing industries to supply the market with loanable funds. There seems to be no reason why the depression which is now setting in should not be a short one, similar to the one that followed the Grant & Ward failure in 1884 and the undigested securities panic in 1904. Another big panic is not due until 1913, and if that one comes along on time, it will not be as great a one as the one of 1893, which itself was not as great as the one of 1873. The accumulation of stored wealth in this country is tending to make the effects of financial panics less disastrous than heretofore.

WM. KENT.

# BOOK REVIEW.

**The Mineral Industry During 1906.**—Fifteenth edition. Edited by Walter Renton Ingalls, editor of the *Engineering and Mining Journal,* New York and London. Hill Publishing Co., 931 pages, illustrated. 6½ by 9½ inches. Cloth. Supplied by THE IRON TRADE REVIEW for $5.00.

The fifteenth volume of this valuable annual publication appears earlier this year than usual and has some 200 additional pages of matter. As is customary in each succeeding edition, revisions are made in the matter appearing in preceding issues and the information and statistics contained in the present book are the most accurate obtainable. It is therefore valuable to those who are familiar with the book and have some copies of past years not only because it contains figures for 1906 but because of the more correct data covering less recent periods.

The book is a library of reference covering the occurrence, development, mining, preparation, production and value of all minerals, both domestic and foreign, and presents a variety of tabulated figures which includes all the statistical information ordinarily desired. Long experience has enabled the compiler to present the matter in a sufficiently concentrated form to meet the requirements of a reference book and it will be found valuable to almost anyone having commercial or educational interests.

**Copper Mines of the World.**—By Walter Harvey Weed, fellow of the Geological Society of America and member of the A. I. M. E., New York and London. Hill Publishing Co., 366 pages. Illustrated. 6½ by 9½ inches. Cloth. Supplied by THE IRON TRADE REVIEW for $4.00.

This book is intended for those who have a serious desire for accurate knowledge and general information about copper deposits and mines, enabling them to determine whether there is a reasonable probability of a property being where and what it is claimed to be and the characteristics which determine its value and manner of development. To do this a more or less detailed geological and mineralogical treatment is necessary and Part I with the exception of the first two chapters, which have to do with the distribution and production of copper, is devoted to this end. The reader of this book must be, therefore, a student while he reads.

Part II is composed entirely of descriptions of copper mines. The most important deposits all over the world and those from whose development some valuable experience may be gained are described with a varying amount of detail. Methods of mining, nature of the deposit, cost of production and the relation of associated minerals to the value of the deposit are presented to be compared. From this method of presentation one may gain a very broad knowledge for application to particular properties where one may be interested. This feature of the book adds to it a historical value as well and furnishes interesting reading for those who are familiar with copper mining.

**The United States Steel Corporation: A Study of the Growth and Influence of Combination in the Iron and Steel Industry;** by Abraham Berglund, Ph. D., 6 x 9½ inches; 178 pages. New York. The Columbia University Press.

The author has made a very careful study of the rise, growth and influence of the corporation, and while, as he says, so much has been written about the corporation that little can be said that is absolutely new, there is a large amount of information in the volume, and disputed questions as to policy are discussed in a fair minded spirit. In the introduction, the author discusses concentration in the iron and steel industry, and then takes up the determining factors in the iron and steel situation, such as natural conditions; the concentration of capital; the effect of alternating periods of prosperity and depression, and the tariff. The cooperation of these influences, he says, evolved the Steel Corporation, and this evolution is very closely followed. He describes the numerous iron and steel consolidations of 1898-1900, and says that the interests in control failed to follow a conservative policy, as all of the companies paid regular dividends on their preferred stock from the date of their organization until merged into the larger corporation. After two years of high prices and large profits, the financial position of these concerns was scarcely better than at the outset of their careers. So long as the various companies confined their trade to certain fields of the iron industry and to certain territories, the harmony of their interests was not seriously disturbed. But these organizations aimed to be ultimately self-sufficient. Hence, when the primary producers were about to enter the lines of finished material, or the producers of finished material attempted to become independent by invading the field of those who supplied them with pig iron and steel, a serious competition threatened their financial standing. The efforts of the American Steel & Wire Co. and other large concerns to extend their operations are described, and the author says that these proposed movements caused serious anxiety to leaders of the consolidations of the middle west. The results of the threatened competition would obviously be ruinous to most of the concerns involved. Heavily over-capitalized as most of the companies were, and fortified with very inadequate reserves, such competition would have meant decreasing profits and the passing of dividends. These conditions opened the way for the formation of the Steel Corporation.

Prof. Berglund tells of the formation of the Corporation, devoting one chapter to the consideration of its capitalization. He says that if the amount paid out in interest on bonds and dividends on stock in 1904, the most trying year of its existence, is capitalized at five per cent, the capitalization would amount in round numbers to $974,759,000. While this would seem to indicate that the present capitalization is not excessive, it does not, in the opinion of the author, establish the fact that the Steel Corporation could successfully withstand a prolonged period of depression. A chapter is devoted to the consideration of the Steel Corporation and prices, and the author concludes that the policy of the Corporation has been one of wise conservatism, having been an important factor in the steadying of prices. The last chapter is given to the consideration of monoply and iron associations, and closes with a tribute to the Steel Corporation for issuing complete annual reports, unlike many other large consolidations.

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The new structural fabricating shop, of the Jones & Laughlin Steel Co., is now in complete operation. It has been erected in connection with the Second Avenue plant of the company, but will draw upon the new No. 14 structural mill on the south side, Pittsburg, for shapes.

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The Davenport Locomotive Works has submitted the lowest bid to the Isthmian Canal Commission for 12 four-wheeled saddle tanked locomotives for construction work on the Panama canal. The Davenport Works' bid was $36,996, or $37,956 set up at Colon ready for operation.

# IRREGULAR STATE

## NOTED IN ENGLAND'S IRON AND STEEL INDUSTRY.

### Satisfactory Earnings Shown by Companies.—Well Known Iron Masters Dead.—News of the Kingdom.

Office of THE IRON TRADE REVIEW,
Prince's Chambers, Corporation St.,
Birmingham, Eng., Sept. 3.

The state of the iron trade is singularly irregular and uncertain. Some people express themselves quite unable to diagnose its condition. With few exceptions the mills are running regularly, but generally speaking there is not much new business. Greater animation is manifest in galvanized sheets, and the association which met in London this week decided to maintain the present price. But gas strip is dull, and wire, both of iron and steel, is considerably weaker than it was a month ago. Some people are inclined to be pessimistic, but in these quarters it would seem that sufficient allowance has not been made for the comparative quietude inseparable from the holiday season. The trade in steel bars and billets is feeling the influence of persistent rumors predicting extensive American and German arrivals. But so far these have not materialized. In pig-iron there is a disposition to make slight concessions, in which the lead seems to be taken by Northampton. But important exceptions are Nottingham and South Staffordshire. Stocks of finished iron in warehouses are extremely low, and if the farmers should order plentifully, there will be big autumn demand for the merchants. Although some people seem to be suffering from "nerves" the outlook is fairly cheerful.

The Gloucester Wagon Co. shows a profit of £31,432, and makes its dividend 7½ per cent. The Brightside Foundry Co. increases its dividend from 6 per cent to 7½ per cent, and the Moss Bay Hemetite Iron Co. pays 5 per cent.

The reports of leading iron companies continue to be extremely satisfactory. The firm of Guest, Keen & Nettlefolds, Ltd., announces profits for the past twelve months of £470,511, and recommends the payment of 5 per cent on preference shares, and 10 per cent on ordinary shares with an additional bonus of 1s.

The Workington Iron Co. is credited with a remarkable achievement. Last year it raised its dividend from 8¾ per cent to 30 per cent, having increased its profits from £70,634 to £96,421. By omitting this year's payments to reserve the company is able to raise its distribution on ordinary capital from 30 per cent to 150 per cent.

Hardly less satisfactory is the return of Bolckow, Vaughan & Co., who have increased their profits by over a quarter of a million. The firm pays 10 per cent dividend as compared with 6 per cent and 5 per cent in the two previous years. For the second year the Sheffield Forge & Rolling Mills Co. pays 10 per cent as against 5 per cent for several previous years. The Normanby Iron Works pays 6 per cent on both preference and ordinary shares.

**Deaths of Iron Men.**

This year's obituary list of prominent ironmasters is assuming formidable proportions. One of the best known ironmasters in Scotland has been removed in the person of William Jacks, who died at Callander. He had been associated with a great number of large Scottish enterprises, was a past-president of both the British Irontrade Association and the West of Scotland Iron and Steel Institute. Mr. Jacks rose by talent and perseverance from the ranks. He was first engaged in a Hartlepool shipyard, afterwards becoming manager of an engine works at Sunderland, and developing business in London, Liverpool, the Clyde, South Wales, and Tees Side. He was head of a large iron firm at Middlesbrough.

An ironmaster who must be very well known to many Americans, was the late John Bayley Lees, who died after a short illness a few days ago. He was the founder of the well known firm of J. B., S. & C. Lees, of West Bromwich, and at the time of his death shared the proprietorship of this concern with his son, John Lees.

Within the last few days the Secretary for India has placed extensive contracts for the Indian State Railways with a supply of wagons. The Metropolitan Amalgamated, Birmingham, has an order for 2,500; Stableford & Co., of Coalville, Leicester, 1,000; P. & W. MacLellan, Glasgow, 1,650; and R. Y. Pickering & Co., Wishaw, Lanark, 700.

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Joshua Peters, Oswald J. Peters, David I. Welch and Seymour Peters have obtained a charter as the Record Stove & Furnace Co., Ltd., of Winnipeg, with an authorized capital of $40,000.

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After a shut down of a week the Ohio Falls Iron Co. has resumed operations at its New Albany, Ind., plant. The plant was shut down in order to settle the wage scale and permit repairs that have been needed for some time.

## PERILS OF A GREAT FIRE

### Pointed Out by President of Underwriters—May Limit Height of Skyscrapers.

Important changes in the building code of New York City will doubtless result from the deliberations of a committee of 30 appointed to go over the building situation in the metropolis and recommend such alterations in the regulations as are demanded by present and prospective requirements. This committee is thoroughly representative of the various interests most vitally concerned; its work for the present is being carried on mainly through sub-committees.

At a recent public hearing on the limitation of heights and areas of structures, George W. Babb, president of the New York Board of Fire Underwriters, urged the following limitations:

For non-fireproof buildings to be used for commercial and manufacturing purposes, a height of 55 feet and an area of 5,000 square feet, to be increased a little when the building extended through the block or was situated on a corner; in fireproof buildings provided with automatic sprinklers and designed for office use only the area could be extended to between 20,000 and 30,00 square feet and a height of 125 feet could be permitted.

Unless some such limitations are imposed and enforced, Mr. Babb predicts that some day the roof of the financial district will be swept off by a devastating fire, leaping from skyscraper to skyscraper hundreds of feet above the heads of the firemen and defying their best efforts. Such a blaze, even though it were confined to the dozen blocks where the great office buildings are thickest, would entail such a loss that, in Mr. Babb's opinion, the underwriting companies would be so hard pushed that they could pay only 20 or 25 cents on the dollar. In part, his arguments are given below:

With our present unlimited height of buildings in the financial center, where the streets are being converted into narrow canons by the walls of 30- and 40-storied buildings, we are courting a disaster that would outdistance that of any other great fire in the country. The San Francisco fire has taught that so-called fireproof buildings cannot withstand the attack of an uncontrolled wave of flame. How much more dangerous would a fire be when it was sweeping through the top levels of our lines of lofty buildings.

Fire experience has taught that a high building of great area nurses the hottest fires. It is not only not beyond the range of possibility, but the fire underwriters fear that there is a

very strong probability of a fire starting in the nest of skyscrapers and beating across streets from the windows on the top floors to other buildings. All systems of sprinklers and all attempts at fireproofing would not avail in the least in an instance of this kind. The firemen away down below could do nothing. The fire would gain such headway that when the edge of the skyscraper zone was reached there would be a blaze of such proportions as to imperil the whole city. Reliance cannot be placed in any fire department even under the most favorable conditions when once a fire is sweeping uncontrolled.

## IRON ALLOYS IN FRANCE.

Replying to a series of questions in regard to iron alloys and petroleum coke, Consul-General R. P. Skinner, of Marseilles, states that thus far petroleum coke has not been used in French furnaces for the reduction of ferro-tungsten and similar alloys owing to its present high price, to which he adds:

In regard to the exports and imports from Marseilles of the iron alloys mentioned I have the following report from the collector of customs:

The movement during 1906 of the different articles imported or exported under the designation of cast iron may be thus resumed:

| | Imports. Pounds. | Exports. Pounds. |
|---|---|---|
| Ferro-silicon | 22,663 | 324,046 |
| Silico-spiegel | 155,513 | ..... |
| Ferro-manganese | 111,686 | 139,552 |
| Ferro-chromium | ..... | 57,163 |
| Total | 289,862 | 520,761 |

No movement was registered of ferro-tungsten, ferro-molybdenum, ferro-vanadium, or ferro-titanium. The ores from which all of the foregoing are reduced are not separately set forth in our commercial balance, and it is only possible to furnish the figures for 1906 relating to "non-designated ores," in which these particular ores are included:

| | Importations. Pounds. | Exportations. Pounds. |
|---|---|---|
| General commerce | 30,820,630 | 88,736 |
| Special commerce | 30,750,082 | 18,849 |

The statistics under the head of special commerce include ores imported for domestic purposes, or exported ores of domestic origin. It may be added that in so far as it has been possible to ascertain the facts the exportations of ore under the head of general commerce included 66,689 pounds of tungsten ore (wolfram) and 22,046 pounds of chrome ore, and the first of these two categories supplied exclusively the figures relating to exportations under the head of special commerce.

An important Marseilles dealer in ores says that ferro-tungsten and ferro-molybdenum are imported from Germany, but that none of the other ores are imported into France in considerable quantities. He quotes the following prices for the crude ores:

Ferro-tungsten, $12.93 per unit of tungstic acid in each 1,000 kilos (2,240 pounds). Ferro-vanadium, $1.93 per kilo (2.2 pounds) of vanadic acid. Ferro-molybdenum, 70 cents per kilo of acid. Ferro-chrome, 42 cents per 10 kilos. Ferro-titanium, $17.37 per 100 kilos, containing 70 per cent of acid. Ferro-silicon, same price and proportion as ferro-titanium.

These ores are first refined, and thereupon mixed with iron and cast metal for the production of steel, selling at 58 cents to $1.35 per kilo, according to quality and mark. He does not know of any importations of these ores from the United States. Another Marseilles business man states that in order to export ferro-tungsten to France, shippers must supply it at not more than 77 to 87 cents per 2.2 pounds, 60 per cent standard, f. o. b. Marseilles.

## COVINGTON PLANT

### Will Be Sold by the Republic Iron & Steel Co.—Will Be Scrapped.

The passing of another historic iron works in the central west is noted in the annual report of the Republic Iron & Steel Co., which states that the Mitchell-Tranter Works, Covington, Ky., is to be disposed of. In fact, this plant, which has been idle for three years, has already been partially dismantled and the sale of the remaining property has been authorized by the Republic executive committee. It is probable that the plant will be scrapped, as it is obsolete in type and equipment and is badly located, having poor shipping facilities. To place it in shape for successful operation would have reqiured a heavy expenditure and as the policy of the Republic company is to centralize its operations in well-located, thoroughly modern plants, it was decided that the Covington works should be sold. They were established in 1873 to manufacture plate, channel, angle and merchant iron, boiler plate and plow steel and had an annual single-turn capacity of some 15,000 tons. An acid open-hearth steel furnace was erected in 1879, but was later dismantled. The mill contains a 20-inch muck mill, 26-inch plate mill, 20-inch bar mill, 10-inch bar mill and an 8-inch guide mill.

Negotiations are now under way for the purchase of the works by A. T. Baumgarten, of Pittsburg and McDowell & Co., of Allegheny, Pa., who if they become purchasers, will sell the greater part of the equipment as scrap.

Twelve mills at the American Sheet & Tinplate Co., Elwood, that have been closed since Aug. 5, have resumed operation. This puts the entire plant into operation, giving employment to 1,700 persons, 14 mills in the hot mill department having been put in operation last week.

## THE RAW MATERIAL SUPPLY.[1]

By P. H. Knight[2] and C. E. Skinner.[2]

If it were feasible to present here a complete list of the different materials which form the component parts of the product of any large manufacturing company together with those which are consumed in the manufacturing processes, or of those which are used by any great railroad, the range and variety displayed would doubtless surprise those not closely connected with such work. The list for a company with which the writers are somewhat familiar contains not less than 850 items. This list is made up of definite and distinct classes or grades of materials, the various shapes and sizes of any class all being included as one item. The purpose of this paper is to present a few considerations involved in the procuring of raw material so large and varied. The term "raw material" will be used to cover all material purchased on which work has to be done by the manufacturing company, as copper wire, pig iron, insulating paper, brass rod, porcelain, sheet steel, cast steel, etc., or which is consumed in the manufacturing process, as cutting compounds, fuel oils, coke, etc.

From the manufacturer's point of view there are in general two sets of conditions involved in the selection of a raw material:—(1) The engineering, which requires that the material have characteristics suitable for the purpose intended. (2) The commercial, which requires that the material selected be one that can be obtained in sufficient quantity—preferably in the open market and on satisfactory terms.

The most convenient method for designing engineers to designate the material to be used in a particular case or to make known the conditions to be fulfilled by it, is to refer to the title and serial number of a purchasing department specification in which the characteristics of the material are described and the tests to which it must conform are specified. This presumes, of course, on the previous preparation of a purchasing department specification under the general conditions governing such specifications. If specifications could be prepared that would cover all classes and grades of material required and be so worded that they would be satisfactory to all parties concerned, the work to be done in connection with the supply of raw material would be mostly of a routine nature—merely checking the shipments received in line with the requirements of the specification. Unfortunately, however, where the materials

[1]Abstract of a paper presented at the Atlantic City (1907) meeting of the American Society for Testing Materials.

[2]Westinghouse Electric & Manufacturing Co., Pittsburg.

are of great variety, it is often quite impracticable, for many of them, to use a specification at all. In many cases materials are used by manufacturers for purposes for which they are not ordinarily designed. The maker may have no means of making tests which will indicate to him whether or not his product is satisfactory for the purpose intended by the purchaser. It is also frequently difficult to devise a test that will readily and accurately determine the suitability of a material; or, granting that such a test can be made, it may not be generally recognized by the trade, and the manufacturers of the material, not being prepared to make the tests, may not be disposed to do business on this basis. Again, while the tests may be satisfactory to all concerned, the cost of making them may be more than any probable loss or risk involved in buying without a specification.

**Purchase by "Brand" Names.**

In such cases, the obvious course is to buy a grade or brand which has a definite standing in the trade, if such can be found which shows characteristics suitable for the purpose intended. The purchaser of the material must then determine for himself whether or not the commercial variations in the brands selected are such as to interfere with his manufactured product. In some cases this method of buying by band or grade is more satisfactory than buying by specification, especially where the commercial variation in standard materials is not too great for the use in view. On the other hand, when materials are susceptible of adulteration, competition may lead the manufacturer or dealer to adulterate to such an extent that trouble results in the use of the material. The trouble and loss which may result from the use of such adulterated goods is sometimes many times as great as the value of a month's or a year's supply of the goods in question.

It is sometimes very difficult to draw a specification so that shipments of material obtained under it from different sources will correspond close enough to each other to be satisfactory, even though each may technically fill the specification; and this also involves the question as to whether materials made by different manufacturers may be used together or must be used separately.

Each material may be satisfactory for use with its special characteristics in mind, and totally unsatisfactory if mixed with other goods of the same class or if not used correctly. Consequently, the shop methods and processes involved in a large factory may be a determining factor in the use of a particular brand or brands of material. From the manufacturing standpoint it is of course undesirable to have materials of the same general class which must be used separately, while, on the other hand, it is undesirable to be limited to any one source of supply for a material, as this situation is quite likely to result in a higher price than would obtain with competition. Furthermore, a strike or some accident such as a fire might at any time entirely shut off the supply, thereby delaying the completion of apparatus and necessitating the use of some untried material. It is very desirable, therefore, to try out materials from different sources, to map out their characteristics and to determine whether or not they can be used together and under the same conditions. If this can be done the brand or grade may be placed on an approved list and the purchasing department instructed to buy from any of the approved sources, as market conditions may dictate.

If, for the reasons outlined above, materials cannot be used together but may be used as substitutes for each other, care must be taken that the supply of one brand or grade is exhausted before another is introduced, and that those interested in the use of the materials are properly instructed when, for any reason, a change from one to the other is made.

It is frequently impracticable to approve all the possible sources of supply for a given material on account of the large number, and, when this is the case, a sufficient number of sources should be investigated so that the necessary competition may be secured in the buying of the material in question. One difficulty in following out this plan lies in the fact that there may be sources of supply which have not been investigated and not approved which may be just as satisfactory as those on the approved list. In such cases commercial conditions must dictate the policy in extending the list.

**Purchase Without Specifications.**

The purchase of a brand of material without a specification or without investigation for approval always involves more or less risk and sometimes extra labor. This labor consists in lining up any characteristics not familiar to the workmen and in following up the troubles which may occur due to the effect of such characteristics, even though the material may become entirely satisfactory when the workmen become familiar with its use. The risk lies in the possibility that different shipments from an untried source may vary in quality, to the detriment of the completed product, or that an increase in the cost of production may be caused by some variation which may escape notice in testing and inspecting the raw material.

From the standpoint of the producers of raw materials, specifications are distinctly advantageous to firms that will not reduce the quality of their product below accepted standards in order that they may cut prices. Where several brands are approved for purchase without specifications on the basis of price only, a premium is liable to be placed on the adulteration of goods or the lowering of their quality in order to meet competition. Specifications fairly drawn and strictly enforced are a protection to honest firms against unfair competition. Specifications play so important a part in the purchase of a material that it may be worth while to give an outline of some of the steps necessary to secure satisfactory specifications and some idea of the way in which they are commonly used.

**Drawing Up Specifications.**

It is usually impossible for any one—no matter how familiar he may be with any particular material—to draw a specification for that material without spending considerable time in making tests and securing approval, although the idea seems to prevail among many that all that is necessary is for an engineer to write out the characteristics which he wishes fulfilled in the material in question. To be entirely satisfactory in its workings a specification must be sufficiently rigid so that any material which is unsatisfactory for the purpose intended may be rejected under the specification, and yet sufficiently broad so that material required can be secured without undue cost or delay.

Good results have been obtained by drawing a tentative specification, using all the knowledge which may be available from previous tests on the material and from similar specifications in general use when such are obtainable, and keeping in mind the requirements which the material must fulfill to be satisfactory. These tentative specifications are then sent to manufacturers or dealers from whom the material may be obtained, with a query as to whether they can comply with the specification as written or what modification would enable them to furnish the material more promptly or cheaply, also whether the tests outlined are acceptable, and whether or not the specification as drawn already or as modified by their suggestions will apply to commercial brands of material on the market. A commercial product should always be aimed at in such specifications rather than a special product, which invariably costs more. In certain cases, however, it may be necessary, on account of the use to which a material is to be put, to include requirements which are not usually considered commercial.

Occasionally a preliminary specification is accepted without objection, but more frequently changes or additions are suggested, after which there follows a process of adjustment by means of which the various interests are made to agree, as far as possible, in regard to specific characteristics and tests which will admit material from the greatest number of available sources and which will also maintain a standard of quality satisfactory to the user. Before such a specification is finally adopted, it is necessary that all parties interested in it be consulted. The purchasing agent may desire to include something in regard to the basis on which unsatisfactory material may be rejected; the storekeeper may be interested in the size of package and how they shall be marked; or the superintendent may wish to insert a clause that will lessen the labor in handling the material in the shop. The final copy, including all the suggested changes and additions it is thought advisable to incorporate in the specification, is then sent to the manufacturers or dealers for their final approval. Experience has demonstrated that frequent consultation with those who are to supply the material is very advantageous, as it promotes a better understanding of the situation on the part of all concerned and avoids much of the friction that would otherwise occur in regard to the acceptance of shipments.

Although a specification may have been adopted and put into operation, it cannot be called completed until after a considerable period of time has elapsed. The maker of a specification for a material that has previously been bought without specification may consider himself rather fortunate if the specification does not need to be revised in some six or ten months after it has been issued. One of the reasons for the necessity of revision is that, while it is very easy to write a specification which can be understood, it is very difficult to so word a specification that it cannot be misunderstood, and the writers of specifications are sometimes astonished to find how many meanings can be placed on a phrase or sentence which they had believed to contain but one meaning. It also sometimes occurs that a small detail which was considered satisfactory when the specification was drawn will prove to be quite unsatisfactory in practice.

### Partial Specifications.

There is a third class consisting of those materials which can only be partially covered by a specification. These materials are of such nature, or the conditions surrounding their use are such, that, with any tests practical enough to adopt in a specification, it is not certain that material conforming to the specification will be satisfactory in service. On the other hand, practical tests may be known such that non-compliance with them will conclusively prove that the material is unsatisfactory, so that a specification based on such tests has a certain value in a negative way. These materials are best handled under a combination system of approved brands and specifications in which the sellers of the materials guarantee them to meet the prescribed tests, and the buyer buys only those brands that have been found satisfactory in his business.

### Inspection.

Copies of purchasing department specifications are given to inspectors of raw material for their guidance in accepting or rejecting shipments. Every specification should contain a clause giving the company the right to reject any material which does not conform to any and every requirement in the specification, but many specifications cover points which, while deserving consideration, are not always of primary importance, as, for example, the size of packages, the method of packing and marking, and sometimes also the shapes and sizes of the material itself. For the further guidance of the inspectors, therefore, it is convenient to issue inspection specifications for their use in connection with the purchasing department specification. These specifications should designate the provisions in the purchasing department, specifications which must be rigidly enforced under all circumstances, and, also, the provisions which in case of non-compliance may be passed over with request to the sellers of the material to follow specification more closely in future shipments.

There may be other requirements in the purchasing department specification, non-compliance with which would unfavorably affect the cost of production in the factory, but would in no way affect the completed apparatus. In this case the inspection specification should require the inspector to reject a shipment only when there is a sufficient amount of the material in the storeroom to supply all needs until another shipment can be received.

A rigid inspection of a large quantity of raw material causes considerable expense and as certain classes of defects in some materials will appear, if they exist, when the material is handled in the factory, it is sometimes advisable to omit inspection when the material is received. To permit this, the purchasing department specifications must be so drawn as to admit of returning the material for credit whenever defects appear.

### Samples.

Another feature of the raw material supply which should be considered is that of samples of materials which the producers submit for investigation in the hope of securing new business. The number of such samples coming to the writers' attention in the course of a year is some thousands. These cover almost every class of raw material, hardware, manufacturing supplies, etc., and the labor and expense involved if all were tested as desired by those furnishing the materials would be very considerable. Many of the letters accompanying such samples are merely to the effect that the sample is submitted for test and no information is given regarding the characteristics of the material submitted, and there is apparently no knowledge on the part of the producer of the material as to whether it would meet any of the requirements of this general class of materials as used by the company to which it is submitted. Other letters frequently convey no idea of the application of the material, simply stating that it is meeting with universal favor, and, this being the case, they assume that there is no reason why it should not be immediately purchased in large quantities by the manufacturing company. Samples are frequently of mailing size, and often quite insufficient for satisfactory tests. Even the name applied to some of these materials is frequently so designed as to afford no clue to its proper classification.

The manufacturing company necessarily derives great benefit from testing and investigating the samples which it receives; many of them give valuable information and start investigations that lead up to the adoption of a material possessing superior qualities or economical advantages. It is probably not desirable to have the number of such samples diminished, but it is very desirable to have each sample accompanied by all information bearing on its characteristics, uses, etc., which the sender can obtain. This information should cover not only the commercial points of prices, deliveries, etc., but also the name of the class of materials to which the sample belongs, its most prominent characteristics, and the principal uses to which the material has been put, also specifying the results of tests—physical, chemical or electrical—to which the material has already been submitted. Such information would often enable immediate decision to be made as to whether a material is worth investigating or whether it has any application in the work of the manufacturing company, while the lack of such information sometimes results in the rejection of a valuable material after preliminary tests to determine its suitability for a purpose for which it was never intended.

In the case of materials bought on "approved brands," without specification, it is especially desirable to have on file

a sample of the shipment that was originally tested and approved, to serve as a standard for comparing with future shipments; and in the case of material bought wholly on specification some well mounted samples of material which is known to comply with the specification, are useful in showing representatives of new firms the appearance of the material wanted.

## TESTS OF VANADIUM STEEL.

The following table shows some tests recently made on vanadium steel from a heat of the United Steel Co., Canton, O., these results being obtained by different heat treatments of the steel. These tests were made by the Ford Motor Co., of Detroit, from a 30-ton heat recently shipped:

| | Tensile. | Elastic Limit. | Elongation. | Reduction. |
|---|---|---|---|---|
| B— | 147,750 | 140,000 | 15 % | 57 % |
| C— | 152,500 | 145,000 | 15 % | 51 % |
| D— | 152,500 | 145,000 | 15 % | 53 % |
| | 150,917 Aver. | 143,333 Aver. | 15 % Aver. | 54 % Aver. |
| No. 14 | 163,750 | 157,000 | 15 % | 51 % |
| No. 15 | 168,750 | 162,500 | 15 % | 51 % |
| No. 13 | 170,000 | 165,000 | 15 % | 53 % |
| | 167,500 Aver. | 161,667 Aver. | 15 % Aver. | 51.6% Aver. |
| F— | 168,750 | 162,500 | 15 % | 51 % |
| G— | 166,250 | 160,000 | 15 % | 53 % |
| H— | 165,000 | 160,000 | 13 % | 46 % |
| | 166,667 Aver. | 160,833 Aver. | 14.3% Aver. | 50 % Aver. |
| No. 6 | 186,250 | 185,000 | 9 % | 30 % |
| No. 8 | 188,750 | 180,000 | 10 % | 30 % |
| No. 9 | 186,250 | 180,000 | 10 % | 30 % |
| | 187,083 Aver. | 181,667 Aver. | 9.6% Aver. | 30 % Aver. |

## THE IRONDALE FURNACE.

(Continued from page 466.)

The Snohomish county property, called the Jefferson mine, contains from 500,000 to 1,000,000 tons of high grade bog ore running 50 to 55 per cent iron, 6 per cent silicon. with a trace of phosphorus and no sulphur.

The Quatsino sound mine contains bog ore also of about the same iron content. It runs very low in both phosphorus and silicon and contains no sulphur. The ore contains no impurities except organic matter which assists in its reduction. The company owns 2,000 acres at Quatsino sound. The ore lies in beds from four to thirty feet in thickness and is not stratified or mixed with any inorganic impurities. Mr. Price declares emphatically that the product of these mines is the easiest smelting ore in the world.

The Irondale Furnace Co. maintains no selling organization; it is unnecessary. The product is known to be first class; can be easily sold under the price of imported iron and all the foundrymen in the region are anxious to buy it. It was stated that the total production of the furnace for two years ahead could be sold out within 30 days.

Irondale is just a beginning. All the old obstacles of improper ores, insufficient capital, mismanagement and inadequate facilities have been removed. The success of the plant is assured. An extensive development of coke furnaces is already planned. Open hearth steel plants will follow and Washington will take its place as one of the iron producing states of the Union.

## ELECTRIC FURNACE PRODUCES FERRO-SILICON.

San Francisco, Sept. 13.—Two tons of ferro-silicon were drawn Sept. 6 from the electric iron smelter at Heroult, near Redding. The smelter produces two tons of ferro-silicon a day. It is expected that the smelter will produce ferro-silicon much more cheaply than it can be imported, as power is cheaper in California and there is no interruption in the work on account of cold, heat, snow or rain. The smelter will be kept running on ferro-silicon until the plant for making electrodes is completed, when the production of pig iron by the electric process will be resumed. A ton of the new product with the first ton of pig iron smelted by the electric process will be sent to the state fair at Sacramento for exhibition.

**Year Was Prosperous.**—A period of prosperous operation is reported by the National Enameling & Stamping Co. in its annual report for the year ended June 30, 1907. The gross profits, after charging off cost of materials, wages, salaries, selling expenses, taxes, operating expenses, bad debts, etc., were $2,464,194, against $1,576,396 in 1905-06 and $1,460,267 in 1904-05. The undivided profits for the year were $1,648,604, against $858,049 a year ago and $835,338 two years ago. The balance sheet of June 30 shows total assets of $31,712,517, against $30,128,855 June 30, 1906.

The N. & S. Electric Co., manufacturer of gasoline engines, Seattle, Wash., is contemplating an enlargement of its machine shop. The firm built a new foundry last winter.

## POWER PLANT

### Being Projected in Indiana Coal Fields—Industrial News.

(Special Correspondence.)

Indianapolis, Sept. 17.—Several local capitalists, headed by Frank Fauvre, are preparing to establish an extensive electrical power plant in the Indiana coal regions and transmit the electricity to this city by wire. A company with $1,000,000 capital stock is to be organized and it is anticipated that the company will make a bond issue of $5,000,000. The new plant is to be established near Seeleyville and the capitalists have acquired the plant in this city of the People's Light & Heat Co., including a city franchise running 25 years from 1905. A power house with a station aggregating 3,000 horsepower will be built at first and added to as the demand requires. Cheap power will be offered to mills and factories and power will be carried fully 100 miles. No less than 5,000 acres of coal land containing four veins of workable coal have been acquired.

The Anderson Forge Co. has completed plans for building a new factory at Dearborn street and Roosevelt avenue in this city. It will be a one-story brick structure and will cost $12,000.

A new factory building is being erected by the International Machine & Tool Co., at Twenty-first street and the Belt Railroad, in this city. It is to be a two-story structure built of brick and will cost $25,000. The company expects to occupy the factory within three months.

With an enrollment of 40 students, the school for iron molders at the Winona Technical Institute has opened in this city. The students come from widely separated points, covering the country over. The molders who were in the foundry at the last term have returned and this will be their final year of instruction.

A strike something out of the ordinary is on in the five stove foundries at Evansville, Ind. Last week the Evansville Stove Co. posted a notice that the custom of taking a recess of 15 minutes twice a day for beer drinking would stop, and the other foundries followed the example. Now 200 molders are striking, although they have been ordered to return to work by their union under threat of having their charter revoked.

The Atlas Engine Works is making repairs to its factory buildings that will cost $7,000.

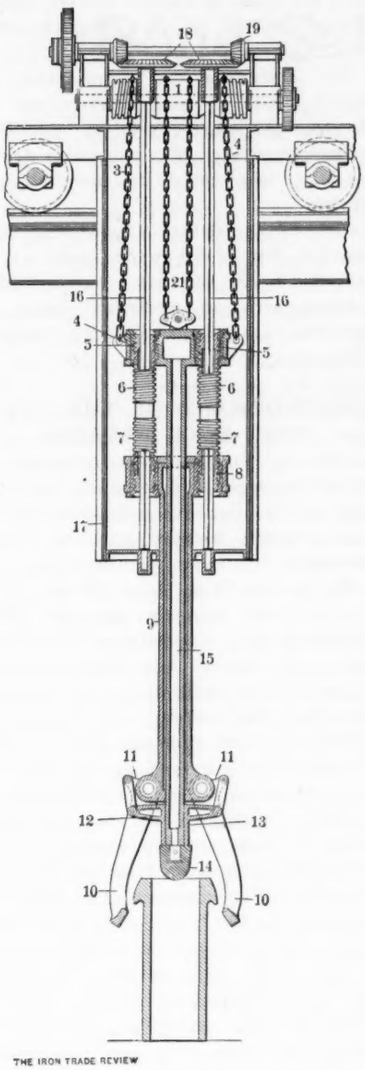


FIG. 1.—VERTICAL CROSS SECTION.

from opposite sides and the lower ends are attached to a suspended cross head 4. The arrangement of the chains in pairs keeping the cross head in a horizontal position during the raising and lowering of the same and affording all the advantages of a rack device.

In the cross heads are secured nuts 5, which engage right-hand screw-threads on the sleeves 6. These sleeves have square holes extending through them and are also provided with left-hand threads 7, which engage corresponding nuts in a lower cross head 8 secured to the upper end of the hollow shaft 9. These right and left-hand threads eliminate the use of guides to prevent rotation of the nut or screw, the screw threads reacting against each other and, consequently, there is no need of sliding guides to prevent rotation of the nut or screw. The jaws of the stripper, represented at 10, are pivoted to the lower end of the sleeve 9. To their shafts are secured levers 11, having link connections with the brackets 12 upon a short sliding ring 13, which, in the position shown in Fig. 1, rests upon the nose 14 of the stop which rests upon the ingot. This nose is secured to the lower end of an inner hollow shaft 15, extending through the ring 12 and through the cross head 8, its upper end being secured to the cross head 5. Two squared shafts 16, extend down through the sleeves 6 and rest in bearings in the casing 17, which surrounds the depending mechanism. The upper ends of these shafts are carried in bearings on the trolley. The bevel wheels 18 are attached to the upper end of these shafts and are engaged by pinions 19 on a shaft geared to the shaft of the electric motor 20.

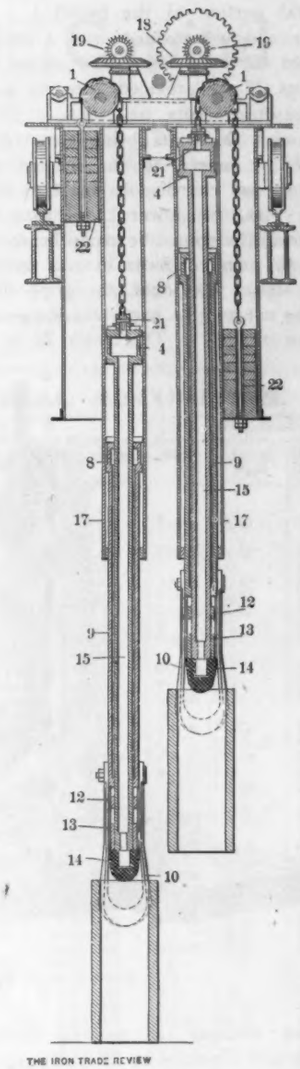


FIG. 2.—VERTICAL CROSS SECTION.

## ELECTRIC INGOT-EXTRACTOR.

The accompanying illustrations show an electric ingot-extractor on which United States patent 862,371 has been granted to Henry Aiken, Pittsburg. This machine is designed to eliminate hydraulic or other power cylinders on the trolley of ingot-extractors in general use at present and to accomplish all necessary movements by mechanical connections from drums on the trolley, which are driven by electric motors. Fig. 1 is a vertical cross section of the machine, showing the jaws open; Fig. 2 is a vertical cross section at right angles to Fig. 1, showing the parts in their operative position; and Fig. 3 is a plan view of the apparatus. The drawings show a duplex extractor arranged to strip two molds placed side by side.

Referring to the illustrations, 1 represents the duplex winding drums, each having winding chains 3 and 4 arranged in pairs at each end. These chains wind

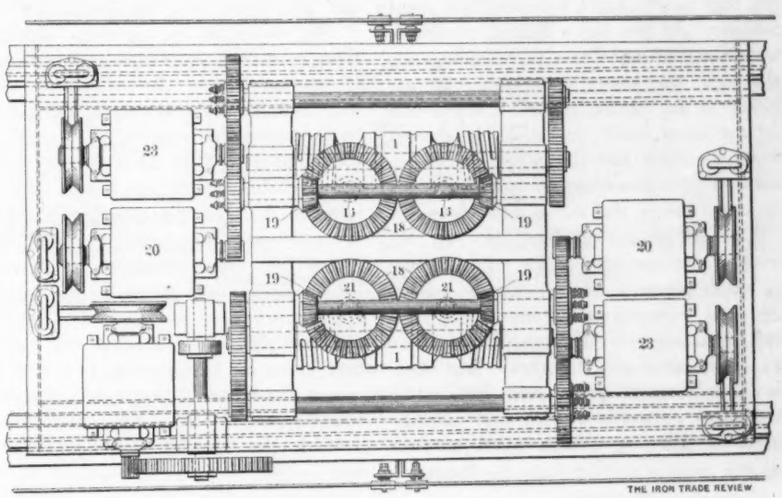


FIG. 3.—PLAN VIEW.

In order to reduce the work of the motors, chains are provided which extend from the compensating link 21, which is secured to the cross head 5, over the

central portion of the barrel 1. The other end is provided with a counterweight 22. To drive the drums, two motors 23 are provided, properly geared to the drum shafts.

In use, the parts being elevated, the trolley is moved to the desired point over the car carrying the ingot mold and the extractors lowered. During this downward motion, the cross heads slide over the squared shafts 16. As the inner stop strikes the ingot, the grips 10 are swung out and the parts take the position shown in Fig. 1. The motor 20, is then started, rotating the squared shafts in the proper direction to lift the outer tubular shafts 9. As these are lifted, the jaws swing in until they engage under the lugs on the ingot mold in their usual manner. As this screw motion continues, a vertical lifting strain is brought upon the lugs, the power being large on account of the screw action. This action is continued until the mold is started from the ingot and the motor 20 is then stopped and the drum motor 23 thrown in gear, lifting the entire extractor.

The advantages claimed for this invention are the elimination of hydraulic or other power cylinders, the elimination of fluid connections to the trolley and the obtaining of all motions by means of ordinary electric motors. The slow screw movement gives great power for stripping, while the stripper may immediately be lifted at a high speed as soon as the mold is started from the ingot.

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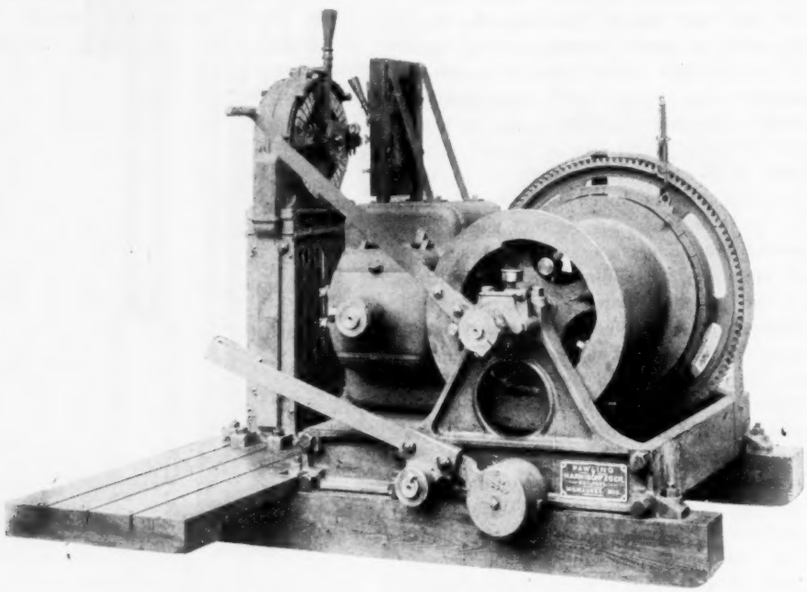
J. C. Van Doorn has been appointed northwestern sales agent for the Universal Portland Cement Co., with office at Minneapolis.

## ONE-MOTOR STATIONARY ELECTRIC HOIST.

The machine reproduced in the accompanying illustration was built by Pawling & Harnischfeger, a number of which were used by the Milwaukee Electric Ry. & Light Co. to haul dirt cars up an inclined track in digging the tunnel for its system of heating pipes and electric light and power lines. The cars were returned to the digging by gravity. The construction of the hoists consists of a front and rear cast iron frame connected by separators, one of which forms the base to which is fastened the motor. This structure is bolted to a timber foundation having a platform for operator and for supporting the controller.



ONE-MOTOR STATIONARY ELECTRIC HOIST.

The motor is the builder's standard type, series wound crane motor directly connected to the friction clutch gear that engages with the rope drum by a lateral movement of the latter on its shaft. This movement is made by a clutch operating device that is handled by the operator with upper lever shown. The lower lever or foot brake lever is connected to a wood lined band brake around the end of rope drum and at same end as the clutch. The switchboard for switch and fuses is fastened on top of the motor frame. All bearings are bronze bushed.

With the current switched on, the operation of hoisting would be to clutch the main gear with drum and start the motor, manipulating the controller to obtain the desired speed and travel. To lower or let the car return, simply release the clutch gear and the drum is free to revolve, being under control of the operator with the band brake.

By extending the drum shaft at clutch end, a winch head can be keyed and that may be operated independently of the main rope drum, or the two could be operated together.

These particular machines are geared for 2,000-pound pull at a speed of 250 feet per minute. Machines with an additional train of gearing are also built for heavier duty.

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## DEVELOPMENT OF THE GYRATORY ROCK BREAKER.

No machine has ever wrought a more complete revolution in the methods of crushing rock and ores than did the gyratory breaker which was first brought to state of perfection in 1885 by the Gates Iron Works, these works now forming part of Allis-Chalmers Co. The introduction of the gyratory crusher has given employment to vast numbers of men in stone quarries and mines, and it has reduced the cost of breaking stone to a minimum. As a consequence the use of crushed stone has been extended to railroad ballasting in concrete work and for road making material. The cost of production of metals has also been greatly lowered and outputs increased by the installation of this machine to break up ore and flux rock ready for the blast furnace. On "low-grade" the saving effected by this and related means is often sufficient to make the difference between paying and unprofitable properties.

From the time of the first application of the gyratory principle to rock breaking, Gates breakers have undergone steady development to meet growing needs. More than 6,000 Gates breakers are in use, distributed in all parts of the world. Among the users of Gates breakers are numbered the largest producers and users of crushed rock and ore in the country, many of whose first purchases, years ago, have been followed yearly by additional orders for these machines.

A few of the larger users of Gates breakers are as follows: Atlas Portland Cement Co., 35 breakers; U. S. government, 25 breakers; Standard Lime & Stone Co., 23 breakers; Lehigh Portland Cement Co., 36 breakers; Homestead Mining Co., 21 breakers; Dolese & Shepard, 22 breakers; Illinois Steel Co., 24 breakers; Clinton Point Stone Co., 21 breakers; Casparis Stone Co., 15 breakers; Oliver Iron Mining Co., 9 breakers.

# Bond Sale Reveals Ample Capital

Interest in the security market within the week has centered upon the sale of the $40,000,000 bonds of the city of New York, bids for which were opened Tuesday. The response from investors to the call for bids was remarkable, the issue being oversubscribed more than five times and drawing 960 proposals aggregating $207,159,420. Twenty-three of the bids were for more than $1,000,000, and two were for the entire $40,000,000. The bonds bear 4½ per cent interest, and though there was general satisfaction over the volume of subscriptions, as indicating a large amount of capital seeking investment channels, yet the low bids received were a source of disappointment. In this fact, market followers read an indication of the present stringency in the money market, and drew from it an unfavorable standard as to the comparative prices of good securities in general. Toward the close of the week, however, there was a gratifying rise in the exchange to the highest price yet quoted in the market for the new bonds "when issued." During the major part of the period under review the heavy liquidation in Amalgamated Copper shares produced a depressing effect upon stocks in general from which industrials suffered the most. Some weakness was displayed by United States Steel stocks as the result of the extensive selling of copper shares. The government report on the Sept. 1 condition of the cereal crop was regarded as bullish in the grain trade and, therefore, bearish on stocks. The wheat crop, as indicated by the report, is evidently sufficient to supply an unfailable surplus in sight at profitable prices. A large, though not a record corn crop, is promised from present indications. In the money market call funds advanced to 6 per cent on Monday, affected by operations in connection with the New York City bond sale. The bids called for accompanying certified checks in the aggregate of $4,000,000, and many of the prospective investors had made financial preparations to pay for the bonds within five days, provided their proposals were accepted. Later, with this influence missing, call money fell to a 5 per cent average. The aggregate of business in the week was light and fluctuations generally were within narrow limits.

### Financial Notes.

In its application to the listing committee of the stock exchange, the Tennessee Coal, Iron & Railroad Co. reports for the seven months ended July 31, total income in this period of $1,929,283, which, less depreciation, interest and dividends, leaves a net surplus of $624,840.

The net earnings of the American Car & Foundry Co. for the quarter ended July 31, 1907, amounted to $2,592,978, and were larger by $197,761 than for any previous quarter in the company's history. The next largest quarter, in point of earnings, was the one ended April 30,,1907, in which the figures were $2,395,217.

The shareholders of the French Westinghouse Co., a large interest in which is owned by the Westinghouse Electric & Mfg. Co., have voted to reduce the capital stock of the company from $5,000,000 to $3,000,000 by reductions in the par value of the 40,000 shares of common stock from $100 to $50, and also to change the par value of the 10,000 shares of preferred stock from $100 to $50, but in the latter case the reduction is to be made good to the holders by the issuance of 10,000 preferred shares of $50 each. The preferred shareholders, in view of the concession made by the common shareholders, ratified the proposition to annul the cumulative right of preferred stock to dividends of 5 per cent, per annum, as far as the fiscal years prior to 1908 are concerned.

James McGloughlin, Laconia, N. H., who is contemplating the erection of a foundry, reports that he has altered his plans, and will not begin construction work this fall, as originally intended.

**THE LEADING INDUSTRIAL SECURITIES.**

| | Clos'ng Quo. Sept. 14 | Changes in Week | Date 1907 Ann. M't'g | Stock Outstanding | Dividend Basis | Dividend Last Paid | Dividend Date Last Div. Pay. |
|---|---|---|---|---|---|---|---|
| Allis-Chalmers | 6¼ | — ⅝ | Sept. 5 | 19,820 000 | | | |
| Allis-Chalmers pr | 18 | —1½ | | 16,150 000 | 7 cum | 1¾ Q. | Feb., 1904 |
| American Can | 4¼ | — ½ | Feb. 7 | 41.233.300 | | | |
| Am. Can pr | 48¾ | — ¾ | | 41,233,300 | 7 cum | 1¾ Q. | July, 1907 |
| Am. Car and Fdy | 37¾ | —3½ | June 27 | 30,000,000 | | 1 Q. | July, 1907 |
| Am. Car and Fdy pr. | 93¾ | —3¼ | | 30,000,000 | 7 n. c. | 1¾ Q. | July, 1907 |
| American Loc | 51 | —3 | Oct. 5 | 25.000 000 | 5 | 1¼ Q. | May, 1907 |
| American Loc. pr | 101 | +1 | | 25.000,000 | 7 cum | 1¾ Q. | July 1907 |
| American Ship | 60⅞ | | Oct. 2 | 7 600,000 | 4 | 1 Q. | June, 1907 |
| American Ship pr | 103½ | | | 7.900,000 | 7 n. c. | 1¾ Q. | July, 1907 |
| Am. Steel Foundries | 7 | | Oct. 1 | 15,810,000 | | | |
| Am. Steel Foundries pr | 34 | | | 17.240,000 | 6 cum | 1 | Aug., 1904 |
| Barney & Smith | 65 | | June 4 | 2,000,000 | 4 | 1 Q. | June, 1907 |
| Barney & Smith pr. | 128½ | | | 2,500 000 | 8 cum | 2 Q. | June, 1907 |
| Bethlehem Steel | 10½ | | April 2 | 14.862,000 | | | |
| Bethlehem Steel pr | 30 | | | 14,90 ,000 | 7 n c. | ¾ Q. | Feb., 1907 |
| Cambria Steel | 31¾ | | March 19 | 45,000,000* | 6 | 1½ S. A. | Aug., 1907 |
| Cambria Iron | 44 | | | 8,468,000* | 4 | 2 S. A. | Apr., 1907 |
| Chicago Pneumatic Tool | 39 | | Feb. 18 | 6,145 800 | 4 | 1 Q. | July, 1907 |
| Colorado Fuel | 22¼ | —3½ | Oct. 21 | 34.235.500 | | 1¾ Q. | Apr., 1902 |
| Crucible Steel | 7⅜ | — ⅛ | Oct. 16 | 24.578 400 | | | |
| Crucible Steel pr | 65⅝ | —2⅜ | | 24,436.500 | 7 cum | 1¾ Q. | Mar., 1907 |
| Empire Steel | 9 | | Feb. 27 | 2,281,400 | | | |
| Empire Steel pr | 55 | | | 2,500,000 | 6 cum | 3 S. A. | July, 1906 |
| Fay & Egan | 100 | | Feb. 19 | 1 000,000 | 6 | 1½ Q. | Aug., 1907 |
| Fay & Egan pr | 128¾ | | | 1,000 000 | 7 cum | 1¾ Q. | Aug., 1907 |
| General Electric | 123 | - 6 | May 14 | 65 167,400 | 8 | 2 Q. | July, 1907 |
| Harbison-Walker | 1 | | Jan. 21 | 18,000,000 | | | |
| Harbison-Walker pr | 71½ | | | 9.600.000 | 6 cum | 1½ Q. | July, 1907 |
| International Pump | 50 | —3 | June 4 | 17,762,500 | | ½ Q. | Apr., 1905 |
| International Pump pr | 66 | —4¾ | | 11,350,000 | 6 cum | 1½ Q. | Aug., 1907 |
| Lackawanna Steel | 45 | | March 13 | 34,971.400 | | | |
| Lake Sup. Corp. | 5½ | | Oct. 2 | 40,000,000 | | | |
| New York Air Brake | 111¾ | | June 18 | 10,000 000 | 8 | 2 Q. | July, 1907 |
| Niles-Bement-Pond | 130 | | Feb. 6 | 5,000,000 | 6 | 1½ Q. | June, 1907 |
| Niles-Bement-Pond pr | 105 | | | 2.000,000 | 6 cum | 1½ Q. | Aug., 1907 |
| Otis Elevator Co | 25 | | March 18 | 6.350 300 | | 3 A | Apr., 1907 |
| Otis Elevator Co. pr | 75 | | | 6,308 500 | 6 n. c. | 1½ Q. | July, 1907 |
| Penn. Steel | 60 | | May 13 | 10.750 000 | | | |
| Penn. Steel pr | 98 | | | 16,500,000 | 7 n. c. | 3½ S. A. | May, 1907 |
| Pittsburg Coal Co | 9 | —1 | Feb. 11 | 32 000.000 | | | Nov., 1906 |
| Pittsburg Coal pr | 49 | — ½ | | 32,000.000 | 7 c. | 1¾ Q. | Apr ,1905 |
| Pressed Stl. Car | 27 | —3½ | Feb. 20 | 12 500,000 | | 1 Q. | Aug., 1904 |
| Pressed Stl. Car pr. | 83 | —2 | | 12 500 000 | 7 n. c. | 1¾ Q. | Aug., 1907 |
| Pullman | 157⅜ | - ½ | Oct. 17 | 100,000 000 | 8 | 2 Q. | Aug., 1907 |
| Railway Stl. Spring | 34½ | —3 | March 7 | 13 500.000 | 4 | 2 S. A. | Mar., 1907 |
| Railway Stl. Spring pr. | 81⅛ | —6¼ | | 13,500.000 | 7 cum | 1¾ Q. | June, 1907 |
| Rep. Iron & Steel | 21½ | —2¾ | Oct. 16 | 27.191,000 | | | |
| Rep. Iron & Steel pr | 75 | —3½ | | 20,416 600 | 7 cum | 1¾ Q. | July, 1907 |
| Sloss-Sheffield | 48 | | March 5 | 10,000,000 | 5 | 1¼ Q. | Aug., 1907 |
| Sloss-Sheffield pr | 95 | | | 6 700,000 | 7 n. c. | 1¾ Q. | July, 1907 |
| Tenn. Coal & Iron | 135 | | May 7 | 29,500 000 | 4 | 1 Q. | Aug., 1907 |
| U. S. Pipe & Fdy | 29 | —2¾ | June 26 | 12 500,000 | 4 | 1 Q. | June, 1907 |
| U. S. Pipe & Fdy. pr | 75 | —5¼ | | 12.500 000 | 7 n. c. | 1¾ Q. | June 1907 |
| U. S. Steel | 29⅜ | —3 | April 15 | 508,302 500 | 2 n. c. | ½ Q. | July, 1907 |
| U. S. Steel pr | 93 | —2¾ | | 360.281.100 | 7 cum | 1¾ Q. | June, 1907 |
| U. S. Steel 5's | 95½ | | | 463 798 000 | 5 | 5 A. | |
| Va. Iron, Coal & Coke | 55 | | Sept. 17 | 8,641,600 | | | |
| Westinghouse Elec | 138 | | July 24 | 24 998.700* | 10 | 2½ Q. | July, 1907 |
| Westinghouse Air Brake | 147⅜ | | Oct. 1 | 11,000,000* | | 5 Q. | July, 1907 |

Par value of shares, $100, except those starred (*), $50.

# NEWS FROM MANY INDUSTRIES

**New Buyers:—**

The Boreas Mfg. Co., Piqua, O., has been organized to manufacture a patent bellows for foundries and other foundry specialties. J. H. Tecker, C. C. Jelleff and G. F. Henry are interested.

The Harley-Davidson Motor Co., Milwaukee, with a capital of $35,000 has been formed by William S. Harley, Walter Davidson, William A. Davidson and Arthur Davidson.

The Sterling Machine & Stamping Co., Vermillion, O., with a capital of $15,000 has been organized by R. E. Clisky, Cora Easterbrook, H. E. Hall, O. J. Horn and Elmer W. Waite.

William J. Bradley, Augustus J. Hann and Thomas J. Sheehey of Troy, N. Y., have incorporated the Monarch Steam Blower Co. of Troy, with a capital of $25,000 to manufacture appliances for cleaning boilers, etc.

The Roanoke Stamping & Enameling Co., Roanoke, Va., has been organized with a capital of $50,000. The officers are: I. M. Warren, president and treasurer; J. A. Sprinkle, vice president; and L. B. Lewis, secretary.

The Rex Light & Stove Co., Milwaukee, with a capital of $5,000 has been formed to manufacture gasoline lighting appliances and stoves. W. J. Rock, R. W. Lovesy and William Tures are interested.

The Greensboro Air Brake Co., Greensboro, N. C., to manufacture air brakes has been incorporated by Samuel L. Trogden, Neil Ellington and W. Z. Brown. The company is capitalized at $125,000.

The Van Vleck Hook Co., Toledo, with a capital of $10,000 has been formed by George H. Van Vleck, Louis C. Van Vleck, Frank Drake, John T. Gray and Wiler A. Owen.

H. E. Graper, W. T. Watson, E. Jones, J. S. Fielder and John W. Stewart have organized the Lexington Machine Works, Lexington, Tenn., with a capital of $15,000, to operate a general repair shop and build steam engines. Address H. E. Graper.

The Craig Giles Iron Co., with principal office at Lewisburg, W. Va., has been organized with a capital stock of $300,000 to engage in the mining of coal, iron and other minerals. The incorporators are: James Laing, Lewisburg; John B. Laing, Lewisburg; R. L. Tilford, Lewisburg; Thomas R. Laing, Beckley; W. R. Thompson, Huntington.

The Columbia Bolt & Forging Co., Cleveland, with a capital of $15,000, has been incorporated by James Boggs, John Pugsley, C. A. Willard, A. B. Bishop and F. C. Zeuch.

The Youdelman-Walsh Foundry Co., Brooklyn, has been incorporated with a capital of $25,000 to do general foundry work. Those interested are: Hyman Youdelman, 786 St. Johns Place; Richard Walsh, 70 Norwood avenue; Max Lipkin, 841 Greene avenue, all of Brooklyn.

The Paige Retort & Crucible Co., Taunton, Mass., manufacturer of retorts, crucibles, etc., has been incorporated with a capital stock of $25,000. Those interested are: Willis K. Hodgman, president; Edwin D. Paige, treasurer; and James M. Westgate, clerk, all of Taunton.

The Faust Machine Co., Brooklyn, mechanical and electrical engineers, founders, etc., has been organized with a capital of $50,000. The incorporators are: Peter Faust and Gustav Faust, 335 Tenth street; Herman Faust, 198A Fifteenth street, both of Brooklyn.

The Emery Steel Co., Birmingham, Ala., has been incorporated with a capital stock of $15,000 with privilege of increasing the same. The company proposes to manufacture engines, machinery, castings and erect power plants of all classes in connection with machinery. The incorporators are: J. A. Emery, until recently general manager of the Birmingham Railway, Light & Power Co., J. H. Pritchard and R. C. Foster. All are men of experience. The principal place of business will be Birmingham.

The Hollow Wall Machine Co., Petoskey, Mich., with a capital of $50,000 has been formed to succeed a temporary organization which has been manufacturing machines for producing hollow concrete building blocks. The officers are: Giles E. Hodges, Fife Lake, Mich., president; James S. Hodges, Fife Lake, vice president; W. J. Rachow, Petoskey, secretary and treasurer. The manufacturing operations will be extended.

The Tennesse River Iron Co., and the Sterling Iron Co., with a capital of $1,000 each, have been incorporated at Nashville, Tenn., by J. H. De Witt, Nashville, Lee Douglas, J. C. Marelock, E. H. Parker and W. A. Skelton. They will devote their attention to mining iron and other minerals.

**New Construction:—**

The North & Judd Mfg. Co., New Britain, Conn., has taken out a municipal permit to erect a new foundry 90 x 100 feet.

The National Casting Co., Milwaukee, recently incorporated, manufactures small and accurate castings requiring no machinery, in steel molds of a tough metal, made with a patented process. The castings are especially adapted for cash registers, adding machines, speedometers, typewriters, telephones, voting machines, etc. Plans are being drawn for a large and thoroughly modern machine shop and foundry. Edward W. Schallock is secretary.

The Globe Malleable Iron Co., Syracuse, N. Y., has recently acquired five acres of land immediately adjoining its present plant which will be used for future extensions. The company has more than doubled its capacity during the past year, having constructed two additions, 80 x 160 feet, and 20 x 160 feet. The Globe Co. is paying special attention to custom work in the east.

Work has been started on the new plant for Wilcox, Crittendon & Co., Middletown, Conn., marine hardware manufacturers, which will replace one recently damaged by fire. The plant consists of a 1-story, reinforced concrete factory building, 60 x 200 feet; forge shop 20 x 40 feet; galvanized building, 40 x 50 feet; shipping and storerooms, 40 x 120 feet.

The construction of the new machine shop of the Vilter Mfg. Co., Milwaukee, which is being built on the site of the building damaged by fire in April, is progressing rapidly. The building is of brick and steel, 75 x 162 feet, and is being built in two sections, one of which is 47 feet and the other 28 feet wide. On account of the limitations of its site, the company has been obliged to plan its extension very carefully to afford the desired space.

The Chicago, New York & Boston Refrigerator Co., First National Bank building, Chicago, is having plans prepared for the construction of three buildings of its plant at Fifty-first street and St. Louis avenue, which were damaged by fire July 30. These will consists of two car shops, 180 x 500 feet and a machine shop 32 x 162 feet, all 1-story of steel, brick and corrugated iron. The company's engineer has charge of the work.

The Allegheny Valley Malleable Iron Co., New Kensington, Pa., expects to have its new plant in operation by Oct. 15 at the latest, when it will be ready for all classes of work in the malleable line. As soon as the present buildings are completed, the company will begin the erection of another foundry building 80 x 440 feet, which, when completed, as expected, by the early spring, will more than double the output of the present foundry, which will be from 35 to 50 tons per day.

Rapid progress is being made on the construction of the new plant here for the Baker Gas Engine Co., Sharon, Pa. The building, 125 x 200 feet in size, just north of the city, is up and the roof is now being put on. Machinery is arriving daily and by the first of next month the company expects to have the plant in full operation, employing at the start about 65 men. The building is of concrete block for the first story and the balance of the building of two stories is of steel frame work with windows, a sufficient number of the latter allowing all the light that will be necessary for the workmen.

Architects Rapp, Zettle & Rapp are preparing the plans for the extensive new plant which the Peck-Williamson Heating & Ventilating Co., Cincinnati, manufacturer of furnaces, is preparing to erect at the industrial community of Oakley near that city. Ten buildings of brick construction and practically fireproof throughout have been planned. These will consist of the following: Pouring and charging building, 70 x 140 feet; hand molding building, 70 x 100 feet; cleaning room 70 x 80 feet; pattern shop, 80 x 160 feet; pattern storage house, 60 x 80 feet; warehouse, 70 x 300 feet; tin shop and molding department, 70 x 370 feet; office building, 40 x 50 feet; stable, 60 x 60 fet; and a detached power house.

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**General Industrial Notes:—**

The annual meeting of the stockholders of the American Locomotive Co. will be held at New York, Oct. 15.

The Sumter Machinery Co., Sumter, S. C., has increased its capital stock from $12,000 to $20,000 to provide for plant additions.

The Clifton No. 1 furnace of the Alabama Consolidated Coal & Iron Co., Birmingham, Ala., was blown out Aug. 10 and the No. 2 Etowah furnace of the same company was idle for the entire month of August. Both furnaces are being relined.

At the annual meeting of the stockholders of the La Belle Iron Works, Sept. 10, a resolution providing for an increase in the capital stock from $7,500,000 to $10,000,000 was adopted. The old board of directors was re-elected, with the exception of W. D. Crawford, general manager of the Steubenville, O., plant, who was succeeded on the board by W. S. Foltz, of Newcastle, Pa.

The business of the Savage Mountain Fire Brick Co., Frostburg, Md., for the year ending Aug. 31, is reported by Charles C. Gorsuch, president, as being the largest in the history of the company. At the annual meeting, Mr. Gorsuch was re-elected president and John A. Caldwell, treasurer. The following directors were chosen for the coming year: Charles C. Gorsuch, H. C. Gorsuch, Arthur Baker, Geo. W. Albaugh.

A company is being organized at Barberton, O., to manufacture the Deming mowing machine invented by Henry Deming. A number of trial machines have been manufactured in Akron for the company, and there have been tested and exhibited with general satisfaction. The officers of the company are: Charles Johnson, president; Charles J. Alpeter, vice president; Dr. H. A. Snyder, secretary and treasurer, and Henry Deming, manager.

Arrangements have been made for the consolidation of the Brunk Machine & Forging Co. and the Lorain Machine & Forge Co., Lorain, O., under the name of the Welch Automatic Oiler Co. It is intended to combine the equipment of the two concerns in the plant of the Brunk Co. and to manufacture the Welch automatic oiler for automobiles. Incorporation papers will shortly be taken out.

The Birmingham Coal & Iron Co., formed by the consolidation of the Birmingham Coal Co. and the Birmingham Iron Co., has filed articles of incorporation in New York, showing a capital of $500,000. The principal office is in New York City and the company will operate in Birmingham, Ala. The directors are: H. H. Atkinson, P. S. Arkwright, of Atlanta, W. L. Web, of New York, James Batman, Richard Peters Jr., and T. J. Messon, of Birmingham.

The Terrell Foundry & Machine Co., Terrell, Texas, whose plant was entirely destroyed by fire Aug. 24, will rebuild with an ironclad structure 50 x 100 feet. The equipment wanted at once includes one cupola 32 inches inside shell; one jib crane, 20-foot arm; one elevator, platform, 5 x 6 feet; lift 12 feet and capacity two tons; one worm gear, 4-ton ladle, small ladles of from 150 to 300 pounds capacity, one pair of wagon scales 8,000 pounds capacity, shovels, forks, hammers, etc.

At the annual meeting of the United Shoe Machinery Corporation at Boston, the following officers were elected for the ensuing year: President, Sidney W. Winslow; vice presidents, Wallace F. Robinson, William Barbour; treasurer, George W. Brown; assistant treasurer, Edward P. Hurd; secretary and assistant to president, Louis H. Baker; assistant secretary, Fred H. Wallis. Executive committee, Sidney W. Winslow, George W. Brown, William Barbour, Elmer P. Howe, Edward P. Hurd, James J. Storow. Charles G. Rice was elected a director of the corporation.

The Walnut Machine & Brass Foundry Co., Toledo, recently organized, will specialize in the manufacture of gasoline engines for small craft and also do a general machine and repair business. The company already has a plant. The officers are: E. L. Rowe, president; Charles Parsons, vice president; E. G. Schuller, secretary and treasurer.

The Standard Roller Bearing Co., of Philadelphia, Pa., has recently made many large additons to its plant. The buildings extend over one-half mile of ground from end to end, having a floor space of over 500,000 square feet, the concern now employing over 1,500 men. The business has grown to such proportions as to necessitate the establishing of a department of publicity. The new department will be conducted by C. Dickens Sternfels, who has been identified in a similar capacity with the Arthur Koppel Co., Pittsburg, Pa., for the past three years. Mr. Sternfels assumes charge of the Standard Roller Bearing Co.'s publicity department on Sept. 16 and will be located at Philadelphia.

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**Trade Notes:—**

The Pittsburg Automatic Vise & Tool Co., Pittsburg, has recently shipped its products to Chili, Argentine, Holland, Japan and Greenland.

Comstock, Jones & Co., Caxton building, Cleveland, sales agents for the D. D. Flanner Boiler Co., Toledo, O., have recently closed contract to install the new Cuyahoga plant of the American Steel & Wire Co. with Park water tube boilers.

The General Fireproofing Co., Youngstown, O., has been awarded the contract for furnishing and erecting pin-connected girder frames and cold twisted lug bars as reinforcement

for two new reinforced concrete buildings for the Victor Talking Machine Co., Camden, N. J. One structure is a six-story factory building 90 feet x 132 feet and the other a power house, one story and basement 90 feet x 173 feet. Ballinger & Perrot, Philadelphia, are the architects, Jay M. Whitman, Philadelphia, engineer, and the general contractor is J. S. Rogers & Co., Stanwick, N. J. The contract with the General Fireproofing Co. calls not only for the sale of the reinforced steel, but for the erection in the forms ready for concreting.

## AUSTRALIAN PLANTS MAY RECEIVE BONUS.

Consul-General John P. Bray, of Melbourne, reports that it is anticipated a bill to give a bonus to the iron industry in Australia will be introduced by the ministry during the present session of the commonwealth parliament. He adds:

The acting prime minister recently paid a visit to the works of William Sanford (Ltd.), at Lithgow, in the state of New South Wales, the firm likely to be benefited most by such a bonus, and during such visit is reported by the press to have made the following remarks:

He was very much impressed with the Lithgow works, which were more extensive than he had imagined. A great deal of money had already been expended, but there was still much to be done. Pig iron of various qualities had been produced, but the industry in its higher grades was a question for the future. The promoters of the works said they wanted some assistance. They would prefer a duty on imported iron to a bonus, but, owing to the extent of the other industries which would be affected by a duty on iron, he did not think that would be practicable. Considering the amount of enterprise that had been shown, however, and the extent of the capital embarked, every encouragement should be given to the industry.

This iron-making firm has just increased its capital from $750,000 to $1,250,000.

## BELGIAN GOVERNMENT SEEKS HEAVIER RAILS.

Consul H. A. Johnson, of Liege, advises that experiments are being carried on with a view to replacing the rails now in use on the railway lines owned and operated by the Belgian government by rails of heavier weight —a change necessitated by the increased weight of the rolling stock. He writes:

While formerly the maximum weight of locomotives used on the Belgian lines was from 40 to 45 tons, the weight of locomotives now in use has doubled, being from 80 to 90 tons, with cars of from 20 to 25 tons in weight. So far the heaviest used are what are known as Vignole rails, having a maximum weight of 40.65 kilos, or about 125 pounds per meter (39.37 inches). A limited number of heavy weight rails, it is true, have already been placed on these lines, but their use is confined to crossings, branchings, and switchings only, their weight being 52 kilos, or 114 pounds per meter.

The weight of the new rail with which experiments are being made is 57 kilos, about 125 pounds per meter. The line selected for experimental purposes is that from Liege to Germany, the immediate locality of the experiment being on that part of the line between Liege and Welkenraedt, a distance of some 39 kilometers (kilometer, 0.62 of a mile), bringing the total length of double track to about 60 kilometers, necessitating the use of something like 6,000 tons of rails. It is obvious that the use of these heavier rails will necessitate corresponding modifications in other appliances on the lines affected by the change. The fish joints, for instance, which, with the 89-pound rail, are 60 centimeters (centimeters 0.3937 inch), with the new rails will be double, or 1.20 meters. Sleepers that are now placed at a distance of 80 centimeters apart will, with the 125-pound rail, be separated by a space of only 50 to 60 centimeters.

The proposed change will, in all probability, require an increase in the force of workmen employed on these roads, as the rails, being about 18 feet in length and weighing a ton each, will require special tools and more men to handle them than are needed for the rails now in use. Should the results of this experiment warrant it the proposed change will be made on all lines owned and operated by the government, and these, as is well known, form the greater portion of the railway lines of Belgium. The rails used in making these experiments are furnished by the three most important steel works of Liege under joint agreement.

## FOREIGN TRADE OPPORTUNITIES.

No. 1371. Electrical supplies.—Manufacturers of electrical supplies, plant fittings, and measuring instruments are invited to send their latest catalogs to the Comptroller of Government Stores, Colombo, Ceylon, for the use of the government.

No. 1372. Railway material.—The Brazilian government has recently granted an appropriation of about $325,000 for the purchase of railway material and rolling stock, and the execution of necessary improvements on the Oeste de Minas Railway. Address the Minister of Industry, Communication, and Public Works, Rio de Janeiro, Brazil.

No. 1373. Railway Sleepers.—Tenders are invited by the railway board of India up to Nov. 3, 1907, for the supply of 50,000 sleepers for the Oudh and Rohilkhand Railway, delivery to begin on Dec. 15, 1907, and to be completed by Feb. 25, 1908. Forms of tender and specifications may be had from the chief storekeeper, Oudh and Rohilkhand Railway, Lucknow, India, on payment of a fee of $32.40, which will be refunded to unsuccessful tenderers.

No. 1391. Government railways. The Argentine government asks for tenders on the Central North railway construction, estimated at $2,069,000; rolling stock, estimated at $1,312,000, and material for locomotive and railway coach repairs, estimated at $29,000. Address Minister of Public Works, Buenos Aires, Argentine Republic.

No. 1399. Panama Canal supplies.—(1) Sealed proposals will be received until Sept. 28 by the Isthmian Canal Commission, Washington, D. C., for the supplying of 12 steel barges. (Circular No. 389.) (2) Sealed proposals will be received until Sept. 12 for the supplying of one tugboat. (Circular 390.)

No. 1403. Embossing and Woodworking Machinery.—Fr. Gronarz, Landaustrasse 3, Cassel, Germany, writes that he could find a market for inlaying (embossing) presses for curved surfaces, wheel box, spoke and felloe machinery, and barrel machinery, as such special machinery is made only to a limited extent in that country.

No. 1400. Bridge.—The Swedish government advertises for bids on a new bridge which is to serve as an approach to the new house of parliament and to the state bank, and which it is estimated will cost over $100,000. Specifications and photographs of the location may be obtained from Stockholms Stadsbyggnadskontor, Stockholm, Sweden, for the fee of $7.

## TRADE PUBLICATIONS.

**Fuel Economizers.**—The Green Fuel Economizer Co., Matteawan, New York, is distributing a paper read by R. D. Tomlinson before the New York Railway Club, giving an analysis of tests and monthly records of the Green economizers in the Manhattan power station of the Interborough Rapid Transit Co., New York.

**Valves and Hydrants.**—A catalog 5¼ x 9 inches, 132 pages, is being distributed by the Kennedy Valve Mfg. Co., New York. It contains general specifications of valves with sectional exterior views of an extensive line of valves for all services manufactured by this company and ranging in size from the smallest up to 48-inch valves. The Kennedy fire hydrant is also described, together with check valves, indicator posts, floor stands, etc. A number of tables are given relating to standard flanges and other details useful to users of valves.

**Paints.**—The Bureau of Promotion and Development of the Paint Manufacturers' Association of the United States, Chicago, is distributing a booklet entitled, "Paint Catechism for Paint Men." It comprises terse, practical definitions of paint materials and answers to questions asked in the sale and use of paints. It is compiled by G. B. Heckels, editor of *Drugs, Oils & Paints*, Philadelphia.

**Drills, Reamers, Etc.**—The Cleveland Twist Drill Co., Cleveland, is distributing a wall sheet giving a price list of drills, reamers, etc. The sheet is 9 x 14 inches and printed on both sides.

The Pratt & Letchworth Co., Buffalo, N. Y., manufacturer of iron and steel castings, has purchased additional acreage adjoining its plant, and is now building an addition to the annealing and molding departments, which will greatly add to its output and employing capacity. The present business of the company is a very extensive one, and the plant at present covers more than 15 acres.